



**Developing a Healthier Environment
Under Worldwide Economical Constraint**

**July 07-10, 2013
Porto, Portugal**

Book of Abstracts

**Edited by
Claudio da Rocha Brito
Melany M. Ciampi**



SHERO
Safety, Health and
Environment
Research Organization



COPEC
Science and Education
Research Council

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Message from the General Chair



Another year that people watches the world deepened in lawlessness, moral and social breakdown, economic crises, wars and terrorism. Although the scenario is not very optimist it is important now more than ever the real actions of people, government and organizations in a global scale to solve these issues for the sake of future generations. Many actions have been taking place related to pollution control, sustainable health care systems, renewable energy, construction site safety and many others. It is may be one of the most challenging time for humanity, now that peoples and governments are aware that it is not just climate changes and poverty that must be treated and solved. There are lots of issues that need attention and fortunately sciences and technology are in place to deal with many of these issues. However the other key element for success is the commitment of politics, organizations and individuals to change and address efforts towards real actions in order to assure the survival of mankind in the planet. The theme of the congress "Developing a healthier environment under worldwide economical constraints" has been chosen by the organizers and promoters because of the present world scenario and as a way to instigate researchers and scientists of safety, health and environment to present their researches in the fields. It is amazing to see the response to these issues. For sure economic growth is the objective of nations worldwide and it is something desirable and possible and the technology available can be a strong allied. Sustainable economy, health care, safety are some of the most immediate challenges to be overcome by humanity and scientists are working hard to come up with viable solutions for the next generations. Scientific research is the key element for the enhancement of technological, economical and social sustainable development.

SHEWC - Safety, Health and Environment World Congress for this edition presents the latest researches of many scientists of scientific international community in these fields, valuable contributions for peers to discuss, update and offer out of the box solutions. It is an event that shows cutting edge useful information in environment, health and safety and provides a rich encounter for the community.

As the General Chair of **SHEWC'2013** on behalf of **COPEC** team I am pleased to thank the host institution **Order of Engineers of Portugal** that embraced the organization of this congress. It is imperative to acknowledge and thank in special all the people involved in the organization of this edition of **SHEWC** such as **Eng. Fernando Santos**, Local Chair of **SHEWC'2013** and **Eng. Ricardo Reis**, who have worked diligently for the accomplishment of a successful event.

The **XIII Safety, Health and Environment World Congress – SHEWC'2013** is organized by **COPEC – Science and Education Research Council** and promoted by **SHERO – Safety, Health and Environment Research Organization** in Technical Cooperation (in alphabetical order): AAMP (Fishing Museum Friends Society), ABENGE (Brazilian Society for Engineering Education), ABO (Brazilian Dental Association), AENUI (Asociación de Enseñantes Universitarios de la Informática), AGERCO (Brazilian Agency for Coastal Management), ASEE (American Society for Engineering Education), ASIBEI (Iberian-American Association of Engineering Education Institutions), GCMM (Global Congress on Manufacturing and Management), IEEE-Ed.Soc. (Education Society of the Institute of Electrical and Electronics Engineers), IFEES (International Federation of Engineering Education Societies), IGIP (Internationale Gesellschaft für Ingenieurpädagogik), INTERTECH (International Council for Engineering and Technology Education), IPN (Ingeniøruddannelsernes Pædagogiske Netværk), IRCWR (International Reference Center for Water Reuse), ISTECH (Iberian American Science & Technology Education Consortium), Porto Gente (PortFolk), RBE (Brazilian Network of Engineering), RCI (Réseau Carthagène d'Ingénierie), SBA (Brazilian Automation Society), SBA Young (Student Chapter of the Brazilian Automation Society), SBE (Brazilian Society of Ecotoxicology), SEFI (Société Européenne pour la Formation des Ingénieurs), SPEE (Portuguese Society for Engineering Education), SPEED (Student Platform for Engineering Education Development) and WCCA (World Council on Communication and Arts).

I could not forget to thank to our sponsors FAPESP (State of São Paulo Research Foundation), CNPq (National Council for Scientific and Technological Development), CAPES (Coordination for Improvement of Personnel of Superior Level) and SUPNET - Technology & Information.

I want to thank the authors and participants for their collaborations and willing to share their contributions for the development of science and technology for the betterment of humanity in their fields of expertise.

Thank you all

Prof. Dr. Claudio da Rocha Brito
GENERAL CHAIR
President of COPEC

Message from the Technical Program Chair



Another edition of SHEWC and as usual it has been very rewarding for me to be the Technical Program Chair of **SHEWC'2013 – XIII Safety, Health and Environment World Congress**. It is the 13th edition of **SHEWC** and along these 13 years it has been a success that has overcome the crisis and always providing a high quality congress for the international scientific community willing to share their achievements in their fields of expertise.

“Developing a healthier environment under worldwide economical constraints” is the theme of this year SHEWC that brought up many collaborations of great importance for the achievement of sustainable development of nations and peoples.

This event counts with many interesting collaborations of authors bringing the discussions about sustainability of systems, organizations and societies going beyond once the scientific researches instigate the discussions and also bring the solutions for issues that mainly affects the life on earth in this first quarter of century.

I have the pleasure to acknowledge the good work of the reviewers who have dedicated time and efforts for the revision process. Equally important are the author's contributions as well as of workshops leaders and plenary session's lecturers bringing interesting topics related to the theme.

On behalf of the Technical Program Committee of **SHEWC'2013** I would like to thank all the people involved in the Congress and hoping that everybody enjoys it.

Thank you all

Prof. Dr. Melany M. Ciampi
TECHNICAL PROGRAM CHAIR
President of SHERO

Message from the Local Chair



The **Ordem dos Engenheiros da Região Norte** is pleased to receive, as Chair of the Local Committee, the XIII Safety, Health and Environment World Congress – SHEWC'2013, to be held in Porto.

It is an honor for the Ordem dos Engenheiros da Região Norte to organize jointly with the **Science and Education Research Council – COPEC** another event, of high scientific quality and international reference in this field that has been celebrated.

Eng. Fernando de Almeida Santos
LOCAL CHAIR
President of OERN

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Developing a Healthier Environment Under Worldwide Economical Constraint

**July 07-10, 2013
Porto, Portugal**

Program

**Edited by
Claudio da Rocha Brito
Melany M. Ciampi**



SHEWC'2013 – Program at Glance

Time	Sunday 07	Monday 08	Tuesday 09	Wednesday 10	Time	
8:30 am 9:00 am	Free	Registration	Registration	Registration	8:30 am 9:00 am	
9:00 am 9:30 am		Opening Session	Plenary Session III	Plenary Session IV	9:00 am 9:30 am	
9:30 am 10:00 am					9:30 am 10:00 am	
10:00 am 10:30 am		Plenary Session I			10:00 am 10:30 am	
10:30 am 11:00 am		Coffee Break	Coffee Break	Coffee Break	10:30 am 11:00 am	
11:00 am 11:30 am		Plenary Session II	Technical Sessions	Technical Sessions	11:00 am 11:30 am	
11:30 am 12:00 pm					11:30 am 12:00 pm	
12:00 pm 12:30 pm					12:00 pm 12:30 pm	
12:30 pm 1:00 pm	12:30 pm 1:00 pm					
1:00 pm 1:30 pm	Registration	Lunch	Lunch	Lunch	1:00 pm 1:30 pm	
1:30 pm 2:00 pm					1:30 pm 2:00 pm	
2:00 pm 2:30 pm					2:00 pm 2:30 pm	
2:30 pm 3:00 pm					2:30 pm 3:00 pm	
3:00 pm 3:30 pm	Workshop	Technical Sessions	Technical Sessions	Technical Sessions	3:00 pm 3:30 pm	
3:30 pm 4:00 pm					3:30 pm 4:00 pm	
4:00 pm 4:30 pm					4:00 pm 4:30 pm	
4:30 pm 5:00 pm	Workshop	Technical Sessions	Technical Sessions	Closing Session	4:30 pm 5:00 pm	
5:00 pm 5:30 pm					5:00 pm 5:30 pm	
5:30 pm 6:00 pm					5:30 pm 6:00 pm	
6:00 pm 6:30 pm					6:00 pm 6:30 pm	
6:30 pm 7:00 pm	Welcome Cocktail	Free	Free		6:30 pm 7:00 pm	
7:00 pm 7:30 pm					7:00 pm 7:30 pm	
7:30 pm 8:00 pm					7:30 pm 8:00 pm	
8:00 pm 8:30 pm					8:00 pm 8:30 pm	
8:30 pm 9:00 pm		Congress Dinner(for adhesion)				8:30 pm 9:00 pm
9:00 pm 9:30 pm						9:00 pm 9:30 pm
9:30 pm 10:00 pm						9:30 pm 10:00 pm

Session and Presentation Codes

Codes are used to determine when and where a paper is presented.

Technical Session Coding

A four- character designator is associated with each technical session, as in **LDTN**

Where:

L – is a letter that designates the language of the session:

E – designates English sessions and papers;

P – designates Portuguese sessions and papers;

D – is a letter that designates the day of the session:

M – designates Monday sessions and papers;

T – designates Tuesday sessions and papers;

W – designates Wednesday sessions and papers.

T – is a number that designates the time slot for the session:

1 is late morning (11:00 am - 12:30 pm);

2 is early afternoon (2:30 pm - 4:00 pm);

3 is late afternoon (4:30 pm - 6:00 pm);

N – is a letter that designates the parallel session within any time slot.

A is the first parallel session; B is the second parallel session.

Note

Five minutes will be allowed for introductions and instructions at the beginning of each session. Each paper will be given 10 minutes for the total presentation, with two minutes for questions. All papers will start in 12 – minutes increments to allow conference attendees to “session hop” hear papers of interest. If there is a no-show author in a session, a 12 - minutes break will be called. **Papers will not be moved up in sessions.**

Papers times for sessions are shown below. (H is a letter that designates hour of the day).

Session Begins	H:00	H:30
First paper	H:05	H:35
Second Paper	H:17	H:47
Third Paper	H:29	H:59
Fourth Paper	H:41	(H+1):11
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Sixth paper	(H+1):05	(H+1):35
Seventh paper	(H+1):17	(H+1):47
Session Ends	(H+1):29	(H+1):59

Sunday – July, 07

**12:30 pm – 2:30 pm
REGISTRATION**

The Registration Desk on Sunday will open at 12:30 pm in **Ordem dos Engenheiros da Região Norte** at Rua Rodrigues Sampaio 123, in Porto.

**2:30 pm – 6:00 pm
WORKSHOP**

SISTEMAS DE TRATAMENTO DE ÁGUA PARA PEQUENAS COMUNIDADES
Prof. Alexandre Botari, Coordinator of Civil Engineering Program of State University of Maringá – UEM

**6:00 pm – 8:00 pm
WELCOME COCKTAIL**

All the participants are welcome to join us for the “Welcome Cocktail” on Sunday at 6 pm. It is a nice start for a period of four days of hard work. It is the opportunity to get in touch with other colleagues and make new friends in a pleasant historical and cultural environment.

Monday – July, 08

8:30 am – 4:30 pm
REGISTRATION

9:00 am – 10:00 am
OPENING SESSION

Chair: **Prof. Claudio da Rocha Brito**, General Chair of SHEWC'2013
Prof. Melany M. Ciampi, Technical Program Chair of SHEWC'2013
Eng. Fernando de Almeida Santos, Local Chair of SHEWC'2013
Eng. Ricardo da Cunha Reis, Vice Local Chair of SHEWC'2013

10:00 am – 10:30 am
PLENARY SESSION I

Chair: Prof. Claudio da Rocha Brito, General Chair of SHEWC'2013

DEVELOPING A HEALTHIER ENVIRONMENT UNDER WORLDWIDE ECONOMICAL CONSTRAINTS
Prof. Melany M. Ciampi, Technical Program Chair of SHEWC'2013

10:30 am – 11:00 am
Coffee Break

11:00 am – 12:30 pm
PLENARY SESSION II

Chair: Prof. Melany M. Ciampi, Technical Program Chair of SHEWC'2013

ENGINEERING EDUCATION IN EUROPE IN THE CONTEXT OF THE BOLOGNA PROCESS
Prof. António Ferrari, President of Portuguese Society for Engineering Education – SPEE

12:30 pm – 2:30 pm
LUNCH

2:30 pm – 4:00 pm
TECHNICAL SESSIONS

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Chairs

Tiago Pereira
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Ana Júlia F. Rocha

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Marcia Silva de Oliveira
Rosa Maria Costa Gomes

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Tuesday – July, 09

8:30 am – 4:30 pm
REGISTRATION

9:00 am – 10:30 am
PLENARY SESSION III

Chair: Eng. Fernando de Almeida Santos, Local Chair of SHEWC'2013

BIM E SEGURANÇA NA CONSTRUÇÃO
Prof. Alfredo Soeiro, Former President of European Society for Engineering Education – SEFI

10:30 am – 11:00 am
Coffee Break

11:00 am – 12:30 pm
TECHNICAL SESSIONS

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Nivaldo Gerônimo da Silva Filho
Paulo Henrique Cruz Pereira

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Marcia Silva de Oliveira
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**2:30 pm – 4:00 pm
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Chairs
Lucas Benini
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Paulo Roxo Barja
Cacilda J. Andrade**

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Danilo Duarte Costa e Silva
Mauro S. Braga

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Simone Silva Machado

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**8:00 pm – 11:00 pm
CONGRESS DINNER**

Congress dinner is a pleasant way to gather and to close a successful conference accompanied by the colleagues in a beautiful and inspiring environment. The tickets will be available at the reception desk.

Wednesday – July, 10

8:30 am – 10:30 am
REGISTRATION

9:00 am – 10:30 am
PLENARY SESSION IV

Chair: Eng. Ricardo da Cunha Reis, Vice Local Chair of SHEWC'2013

SEGURANÇA NO TRABALHO DA CONSTRUÇÃO - REALIDADE, MITOS E EQUÍVOCOS
Eng. José Eduardo Marçal, Coordinator of Specialization in Safety Construction Work of "Ordem dos Engenheiros"

10:30 am – 11:00 am
Coffee Break

11:00 am – 12:30 pm
TECHNICAL SESSIONS

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Chairs

Annunziata Donadio Chateaubriand
Dayse Enne Botelho

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Fernanda Cristina Barbosa Pereira Queiroz
Bertrand Sampaio de Alencar

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Alexandre Botari

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Coffee Break

4:30 pm – 5:30 pm

CLOSING SESSION

Chair: **Prof. Claudio da Rocha Brito**, General Chair of SHEWC'2013

Prof. Melany M. Ciampi, Technical Program Chair of SHEWC'2013

Eng. Fernando de Almeida Santos, Local Chair of SHEWC'2013

Eng. Ricardo da Cunha Reis, Vice Local Chair of SHEWC'2013

Developing a Healthier Environment Under Worldwide Economical Constraint

**July 07-10, 2013
Porto, Portugal**

Abstracts

**Edited by
Claudio da Rocha Brito
Melany M. Ciampi**

SHERO
Safety, Health and Environment
Research Organization

COPEC
Science and Education
Research Council

Plenary Sessions

DEVELOPING A HEALTHIER ENVIRONMENT UNDER WORLDWIDE ECONOMICAL CONSTRAINTS

Claudio da Rocha Brito, Melany M. Ciampi, Victor Freitas de Azeredo Barros

This is the 13th. Edition of SHEWC - Safety, Health and Environment World Congress, a congress that has been happening for 13 years. It is important to point out that despite all the difficulties and crises that countries and organizations have faced and still are it is a congress that can count with many organizations participation. It shows that it is an idea that encounters the expectations of scientific and research environment. This edition is very special because it is a joint venture of SHERO and the Portuguese Order of Engineers. These 2 organizations have been working together putting up a top scientific congress with quality and impact in academic and professional communities. SHEWC - Safety, Health and Environment World Congress'2013 has the collaboration of many scientists in the several fields of expertise, who have embraced the ideal of fostering the quality of life of human being.

Technical Sessions

Session EM2A

HEALTHCARE CRITICAL KNOWLEDGE MONITOR SYSTEM MODEL – HEALTHCARE CRITICAL KNOWLEDGE ONTOLOGY COMPONENT

Tiago Pereira, Henrique Santos

Healthcare organizations manage with personal information concerning to patients from many sources that, typically, are supported by computer-based systems therefore, demands cautious when there are ethical and legal aspects involved. Since not all clinical knowledge managed by healthcare organizations could be considered critical (or much critical) we need to define the value of clinical knowledge for further handle in risk management. With the key aspects of InfoSec: Confidentiality, Integrity, Availability and Privacy we intent to achieve the core critical knowledge that will be the source of the healthcare critical knowledge ontology. Critical knowledge ontology should be tailored to the healthcare organization in focus to comply with multiple factors, such as: organizational culture, terminology used, health department specifications, among others. With topic model approach we intent to automatically driven document topics and match with critical healthcare knowledge from ontology, thus, give value to the documents concerning its critical knowledge.

A STUDY ON THE EFFECTS OF THE USE OF THERMAL INSULATION IN PLATE HEAT EXCHANGERS

Maria Fernanda Côrtes Bastos Maia, Sérgio Ricardo Lourenço, Deovaldo de Moraes Júnior

The present study analyzed the importance of thermal insulation in plate heat exchangers, in order to increase the efficiency of these equipments. The experimental work was carried out in laboratory at Universidade Santa Cecília. The study analyzed experimentally the performance of different types of insulations by comparison of the results of heat transfer in equipment insulated and uninsulated, within the same operating conditions. A 5% level of significance variance analysis (Anova) was carried out to compare the averages. The analysis was performed by quantifying the heat received by the cold fluid (water), heat lost to the environment, methods of thermal performance of the heat exchangers. The responses showed that ceramic wool was the best performance for thermal efficiency of the equipment with the outlet temperatures averages of 43.7°C (316.85 K), 24,17 W of heat lost to the environment and thermal effectiveness (ϵ) of 1.24%, under the conditions proposed.

SEISMIC MIGRATION: GREECE AND INTERCONNECTED REGIONS

Aroldo Maciel Máximo dos Santos, Julio Anibal Orrego Savala, Ana Cecília dos Santos

In this essay is presented phenomena related to seismic migration, to ensure the results and comparing possible correlation patterns and migration. The regions observed are the countries: Italy, Greece, Turkey and its correlações. After four years of observations and data collection on the website of The European-Mediterranean Seismological Centre (EMSC) we classify several hundred events with parities, confirming correlated events of migration and chains earthquake (Shebalin 1996); Leaving, also a total of 757 seismic zones, divided into 50 major regions, proposed by Edward A. ER Engdahl and Flinn 1965, confronted with the data collected. This cut, in particular, results and address possible formulas for the perception of patterns originally proposed.

EXPERIENCE THE NATIONAL INSTITUTE OF QUALITY CONTROL IN HEALTH (INCQS) / FIOCRUZ IN SOLID WASTE MANAGEMENT

Janete Duarte, Artur Domingos Fonseca de Melo, Alice Aurora Batalha de Jesus

During the United Nations Conference on Environment and Development (Rio-92), was consolidated the concept of sustainable development, as a guideline for changing directions in global development. There are various forms of solid waste treatment, although in Brazil, most goes to landfills, causing environmental and social impacts. The objective of this work was the implementation of a system of reducing solid waste generated in INCQS by building a policy management social-economic-educational and environmental contributing in the development of the institutional mission. Therefore, we used as working methodology adapted parameters of Reverse Logistics: Recovering, Recycling and revaluing waste generated resulting in the transformation of materials recovered and revalued, in food baskets.

SEISMIC MIGRATION: PORTUGAL, SPAIN, ISLAS VIRGENES Y CORRELACIONES

Aroldo Maciel Máximo dos Santos, George Sand França, Ana Cecília dos Santos, Julio Orrego Zavala

The summary addresses directly the phenomenology of migration and correlation of seismic events and chain of long distance earthquakes (MOGI, 1968). The regions covered are: Spain, Portugal and Açoures islands, Central America and Loyalty islands in South Pacific This study is part of an experimental research developed since 2010, with data collected from The European-Mediterranean Seismological Centre (EMSC) and analyzed together migration of 50 major seismic regions, proposed by Edward A. ER Engdahl and Flinn 1965. The goal here is to discuss the question about seismic tests and ensure hundreds of events with parities, and chain migration earthquake has statistically correlated over large distances (Shebalin, 1996).

Session PM2A

EDUCAÇÃO HUMANIZADORA NO SÉCULO XXI: O PROGRAMA DE EDUCAÇÃO EM VALORES, IDEALIZADO POR SATHYA SAI BABA, NO COTIDIANO ESCOLAR

Joanne Neves Fraz, Áurea Alves da Silva, Marcia Silva de Oliveira

This study aims to check whether it is possible in the current society we live in the formation of future citizens to respect their neighbors, exercise solidarity and know how to live in society, through a humanizing educational practice. The objective of this research is to examine the importance of education based on human values in a student's life to society, making it critical citizen and autonomy. And the specific objectives are: To assess the contribution of teaching philosophy based on human values for the cognitive development of children in kindergarten; Check whether the child can learn significantly through a humanizing experience, identify the practice of teaching (strategies and technical) which reflects a humanizing education; evaluate the implementation of a practice based on human values in an early childhood education center; aimed at training students emancipated, critical and active.

DESCARTE CONSCIENTE DE RESÍDUOS HOSPITALARES: TEORIAS PARA A DIMINUIÇÃO DEFICITÁRIA E A CRIAÇÃO DE UM MEIO AMBIENTE SUSTENTÁVEL

Ionara de Oliveira Campos Alves, Marcia Silva de Oliveira, Liliane Moreira Gomes, Keise Aparecida Costa Maciel, Francisco da Silva Leal Júnior, Jurema Santos de Oliveira Alves

The accounting work of a hospital is basically identical to that of a large company with the differential of their taxes, so awareness and respect for the environment. For this is, or at least should be, the main focus due to the disposal of their toxic materials that influences the management of this entity. We aim to show that deficits will be reduced if the form of disposal of materials is done correctly, efficiently and effectively. Within acceptable standards advocated by the companies responsible for the sector. We do not wish in any way, go down the paths of public policy and / or private because they are not scope of this essay, thus avoiding possible misunderstandings in the presentation of our theories. We infer that the scopes social, humanitarian and supporter will not be referenced, only the scope of corporate tax.

O PROCESSO DE ESCOLARIZAÇÃO NA EDUCAÇÃO INDÍGENA

Joanne Neves Fraz, Monise Glauce da Silva Brasileiro, Marcia Silva de Oliveira

The current study had as purpose to analyze the process of schooling of Indigenous Education, understood as a process of social transformation and trying to understand its characteristics. It is understood that the Indian education goes beyond the classroom when learning involves situations and cultural identity. With a qualitative approach, the research departed from design and ethnographic had as instruments of data collection questionnaire open-ended questions and semi-structured interview (indigenous child). This study was the theoretical foundation National Curriculum Reference for Indigenous Schools. The research was important because it was possible to know how the process of indigenous schooling is structured and formed, and how the cultural characteristics depend on this process differently, even checking with obstacles and problems in relation to the training of teachers, teaching materials and greater suitability to needs of these people.

LEITURA DE IMAGENS COMO RECURSO DIDÁTICO PARA A EDUCAÇÃO INFANTIL

Joanne Neves Fraz, Elaine Alves dos Santos de Andrade, Marcia Silva de Oliveira

In this article, the objective is to verify the use of image reading, as a didactic resource, by teachers from Nursery Education. And, as result, the reactions of pupils when images in the teach-learning process are used. For in such a way, it was made a research in a public school of Distrito Federal; it was used a qualitative boarding and collecting data instruments such as the structuralized interview and the participant comment. Thus, it was possible to verify among Nursery Education teachers that the practical one of the reading of images isn't unanimity yet, although the amplitude of this didactic resource and the great value for the cognitive development of children and their learning.

COMPLEXIDADE E MULTIDIMENSIONALIDADE DOS FENÔMENOS RESULTANTES DA INTERAÇÃO ENTRE ASPECTOS INDIVIDUAIS E O AMBIENTE LABORAL DOS ESPAÇOS PEDAGÓGICOS DE APRENDIZAGEM: RELATÓRIO PRELIMINAR

Marcia Silva de Oliveira, Francisco da Silva Leal Júnior, Jurema Santos de Oliveira Alves, Rosa Maria Costa Gomes, Liliane Moreira Gomes, Keise Aparecida Costa Maciel, Hellen Barbosa da Costa Borges

The teacher, thanks for academic need to adapt to the conditions of a globalized world becomes vulnerable to manifestations of Burnout Syndrome. This is a response to chronic emotional stress characterized by physical exhaustion and/or psychological, for a cold and depersonalized attitude toward people and a sense of inadequacy in relation to the tasks to be performed. We aimed to investigate evidence of the possible presence of this syndrome in teachers of high school, undergraduate and graduate. Specifically, we intend to analyze the perception of teachers about the process inter-relational spaces of learning and teaching, emphasizing the reversibility of the table for those who submit such evidence. We conducted a qualitative ethnographic research. In our challenges, we believe that there are discrepancies between idealism and individual occupational reality. Also, we can say that the change of attitude of the teacher minimizes the intensity of the symptoms of the syndrome.

ESTRESSE LABORAL X DIABETES TIPO 2

Lidiane Bezerra Rodrigues, Marcia Silva de Oliveira, Karine Paixão Rocha, Marcelle Bastos Pacheco

Several studies show the importance on workplace stress causing type 2 diabetes (DM II). The objective is to show how stress influences the development of DMII, suggesting epidemiological aspects of this pathology, the literature related to this subject between 1984 and 2012. It was used as a source of research Latin American and Caribbean Health Sciences (LILACS) and Scientific Electronic Library Online (SciELO) using the keywords central occupational stress Diabetes Mellitus type II immune system. The study showed that stress in the workplace can lead to Type II diabetes due to the imbalance caused by him, authorities must add projects that will minimize and manage stress in the workplace to improve blood glucose levels and prevent the appearance secondary pathologies.

PROPRIEDADES DA MELATONINA COMO FATOR DE NEUROPROTEÇÃO EM DOENÇAS NEURODEGENERATIVAS

Marcelle Bastos Pacheco, Marcia Silva de Oliveira, Lidiane Bezerra Rodrigues, Karine Paixão Rocha

The pineal gland synthesizes melatonin which is classified as non-steroidal hormone in the pinealocytes, when receives stimuli from the retina and is released in the brain ventricles is carried by cerebrospinal fluid throughout the central nervous system, providing neuroprotective resulting from their antiapoptotic properties, antioxidant and stimulant of antioxidants enzymes. Some studies show that melatonin levels decay with ageing and it is precisely at this stage of life that arise neurodegenerative pathologies.

Session PM3A

O IMPORTANTE PAPEL DA FORMAÇÃO AMBIENTAL NO ENSINO DA ENGENHARIA CIVIL: ESTUDO DE CASO SOBRE INCIDENTE COM PONTE FERROVIÁRIA NO ESTADO DE SÃO PAULO

André L. de Lima Reda, Luis F. R. Léo, Bernardo C. Fumió, Ana Júlia F. Rocha, Magda A. S. Duro

Throughout History, Civil Engineering has represented the non-military application of science, art and technology to build facilities to provide humans improving quality of living. It differs from other categories of Engineering, such as Mechanical, Chemical or Electrical, in that its 'industrial floor' is the earth ground, or the river or sea bottom – rather than a factory floor – and the open atmosphere commonly stands for its 'industrial roof' – instead of a man-built ceiling. Thus, industrial processes in Civil Engineering must face the random, environmental changes of Meteorology, Hydrology or Oceanography. The paper emphasises the role of a comprehensive formation of civil engineers such as to qualify them to perform environmental studies preliminarily to planning or designing Engineering works. This analysis of a bridge, built on the São Paulo State, Southwest Region sandstone soil, which faced the risk of collapse during the first considerable flood endured after inauguration, demonstrates this statement.

OSCILAÇÃO NAS CONCENTRAÇÕES DE METAIS EM TEMPO SECO NAS ÁGUAS DO RIBEIRÃO DOS MENINOS EM SÃO CAETANO DO SUL - SP

André L. de Lima Reda, Luis F. R. Léo, Daniel M. Uehara, Leila F. de Miranda, Ana Júlia F. Rocha

Diurnal oscillation patterns in flow and metal concentrations are investigated in a urban river subject to strong diurnal seasonality due to effluent discharges (industrial and sanitary) by analysing quasi-continuous series of dry-weather flow rate and metal concentration measured in the Meninos Creek, São Caetano do Sul, in Brazil's largest automobile industry district – in São Paulo State. The data available are a flow hydrograph and concentrations of six metals (dissolved iron, copper and aluminium; total nickel, zinc and chromium) at two bridges separated by 720m along the creek. By analysing their time oscillations, one concludes that total metals partially settle on this riverbed stretch during low flow periods, and dissolved metals undergo reduction in concentration between the two bridges. This preliminary campaign suggests that this research may be carried on, based on a richer database, perhaps allowing for water quality modelling on this river stretch.

SISTEMA DE CONTROLE DE ACESSO A CONDOMÍNIOS BASEADO EM RFID E BIOMETRIA

Allan Al Haj Naves Pereira, Fernando Massao Fujikawa, Kener dos Santos Kalilio, Ricardo Seriacopi Rabaça, Paulo Alves Garcia

Access control systems are used to prevent access by unauthorized persons to certain places. Two technologies are widely used: RFID (Radio Frequency Identification) and biometrics using fingerprints. This paper analyzes the characteristics of both individual systems and its use in a combined application in condos that require authentication of persons and registered vehicles. The integration of these mentioned technologies are done in a project using a Smart Card RFID reader, a fingerprint reader, with a software developed in C + + and C Sharp, using a database developed in SQL Server ® 2008.

CONDUTA ECOLÓGICA E EFICIÊNCIA ENERGÉTICA FAZEM DO LED A LUZ DO FUTURO

Ana Júlia F. Rocha, Bruno Q. de Oliveira, Gilberto Teixeira da Silva, André L. de Lima Reda

Humans have struggled for long to master and save light, while obsessed for beating darkness. The human kind experienced from fire to electric lamps, varying materials, sizes and light intensities – always aiming at a common goal: light serving man. Technologies have evolved remarkably, currently providing excellent lighting – e.g., fluorescent light bulbs, widely used, since they consume little energy and simulate daylight. However, they use mercury (a toxic element) inside – so, their growing consumption, combined to inadequate disposal, yields new concerns. The paper contributes to show the environmental harmfulness of fluorescent lamps – thus, affecting humans – and presents most acceptable alternatives for replacing them. Current technologies permit to change from fluorescent lamps to LED lamps, which allow for considerably higher sustainability levels, bearing several benefits and advantages as compared to fluorescent lamps. A feasibility study, here, focus on school environments, understood as an ideal site to promote true environmental awareness.

ESTUDO DO BAGAÇO DE CANA DE AÇÚCAR COMO ADITIVO EM SMA

Protasio Ferreira e Castro, Cláudio Luiz Dias Leal

The Stone Matrix Asphalt (SMA) is an effective alternative for raising pavement performance. A characteristic of the SMA mixtures is the high content of asphalt binder. Therefore, fat spot and segregation may come up, when mixing and placing SMA. Fibers are used to avoid that. The production of sugar and alcohol generates about 270 kg of bagasse per ton of sugarcane crushed. Most of bagasse is burned in power plants to produce thermal or electric energy. A study on applying sugarcane bagasse fibres as a stabilizing additive for SMA mixtures is here shown. Laboratory tests and experimental road section measurements were carried out. Results show that by using fibres of sugar cane bagasse, SMA draindown may be controlled and deflections of the road section were reduced.

ÍNDICE DE DESEMPENHO AMBIENTAL DE UM HOTEL FAZENDA

Protasio Ferreira e Castro, Monique Barbosa Paiva

Systems that measure environmental performances do not evaluate countryside hotels. Owners or managers do not have a tool for identifying actions to achieve a desired environmental performance. A study on environmental performance of a countryside hotel is here presented. A gauge of environmental performance index (IDA) based on field survey and statistical analysis was used. The gauge was fed by data collected among guests, staff and managers. The forms were prepared with statements that the respondent could estimate its of agreement, on a scale of values from 1 to 5. An IDA of 60,95% was achieved by the studied countryside hotel. Also, performance of each interested part may be evaluated by the model. Aiming maximum value of 10 points, manager has achieved 9,2, staff 8,65 and guest 5,72. Therefore, actions must be driven on guest to achieve better environmental performance.

AFERIDOR PARA AVALIAÇÃO DA SATISFAÇÃO DO CLIENTE

Protasio Ferreira e Castro, Anna Sábatha Raeder Cambeiro

This work shows an indicator for quantitative analysis of the existing scenario. The indicator is based on statistical principles. The results of indicator are inserted into a model of prospective studies. The process for obtaining customer satisfaction index (CSI) is carried out by surveying opinion, statistics analysis and feeding up results into indicator. Results allow identify the existing scenario, strengths and weaknesses, to plan actions directed to the target, the desired scenario. In order to assess the use of the indicator and the model a case study in a city, in the state of Rio de Janeiro, was carried out. The study conducted a field survey to evaluate public transport services, the environment, public infrastructure and maintenance. The dimensions of transport, environment and infrastructure were significant in the final outcome of the ISC.

Session PM3B

CARCINOMA PENIANO (CP): INCIDÊNCIA NO DISTRITO FEDERAL (DF) E ASPECTOS PSICOLÓGICOS DO PACIENTE DIAGNOSTICADO

Rosa Maria Costa Gomes, Marcia Silva de Oliveira, Francisco da Silva Leal Júnior, Jurema Santos de Oliveira Alves, Liliâne Moreira Gomes

To evaluate the prevalence of cancer (CA) in patients with penile some hospitals in Mexico City, as well as underscoring the importance of preventive measures. You know - that the penile cancer (PC), can be quite common in developing countries, cases PC affect individual above 46 years, bad hygiene, frequent trading partner, and not use preventive measures can be factors relevant to this neoplasm, and enables transmission of HPV (Human Papilloma Virus). We performed quantitative analysis and qualitative analysis with charts, in view of its life history and preoperative diagnosis for limb amputation. Among the activities of Biomedical, it becomes important knowledge about the treatment and PC to perform diagnosis course, besides the description in disease development, and thereby, may be carried public campaigns, but effective and clarified the population.

PAPILOMAVÍRUS HUMANO (PVH) E SUA RELAÇÃO COM A CANDIDÍASE RECORRENTE

Joyce Souza Carvalho, Marcia Silva de Oliveira

This is a field research, quantitative quality character, developed in a Health Unit's of Riacho Fundo I, aiming to demonstrate the relationship of women with recurrent candidiasis with the possible emergence of HPV. The study subjects were women age range of 20-55 years, sexually active covering the years 1957 to 1992. The data collection instrument consisted of analysis of preventive examinations in 100 records, from August to September 2012. Used two frames and a column chart to show the results.

O VÍRUS DO PAPILOMA HUMANO (HPV) E SUA RELAÇÃO COM CÂNCER DE PÊNIS

Diego Rodrigues da Silva Nobre, Marcia Silva de Oliveira, Jurema Santos de Oliveira Alves, Keise Aparecida Costa Maciel

Sexually Transmitted Diseases (STDs) are a public health problem, many causes contribute to the uncontrolled spread of the virus and, as a system of deteriorating health and socioeconomic factors. Due to the rapid spread, the Human Papilloma Virus (HPV) has filed a clinical or asymptomatic. It is essential to treat the lesions caused by HPV in men due to their possible relationship to cancer of the penis, paying attention to the means of contamination and the risks if left untreated. These treatments for drug interactions or surgical lesions. Several studies indicate an association between human papillomavirus and squamous cell carcinoma of the penis. HPV infection, may be among the causes of penile cancer. Because it is a rare condition, almost no data are available in the literature on the molecular mechanisms involved in the genesis and progression of penile cancer, which influence health professionals to develop new research.

PARKINSONISMO NA ADOLESCÊNCIA

Kesly Kristina de Sá, Marcia Silva de Oliveira, Darlles Bruno de Sousa Pereira

Parkinson's disease is a neurodegenerative disease, cosmopolitan, that lacks a well defined etiology, but is prevalent in the elderly shows that feature as the main symptom resting tremor. His description in adolescents is

rare and genetic or idiopathic causes, presenting symptoms related to other age groups, but with a higher dystonia and severe. The objective is to apply to the present questionnaires to adolescents, in order to assess their knowledge about Parkinson's Disease, understand the importance of early diagnosis of the disease and its treatment, and no correlation with age assessed in view the same when diagnosed early may enable a better quality of life for patients.

A ACUPUNTURA COMO TRATAMENTO DE CEFALÉIAS EM QUADROS MENSTRUAIS

Raíssa Guerreiro Sampaio, Marcia Silva de Oliveira, Ubyrajara Nery Graça Gomes, Rosana Regina de Saldanha

The word cephalaea is synonymous of headache and may have primary or secondary origin, as migraine, that is a kind of symptom little diagnosed, because many people that are affected don't know how to differentiate it, but there are treatments that lead to control and relief of seizures of migraine menstrual. The acupuncture is a millennial practice that seeks to alleviate pains and treat many diseases through needles, despite of being a very-old-technique, for many years it was believed as placebo effect, nowadays it is a line of treatment very used and with aid of technology many researches are done, to discover new functions of acupuncture. The objective of this paper was demonstrate the efficiency of acupuncture as treatment of patients of menstrual cephalaea through literature review.

ASPECTOS IMUNOPATOLÓGICOS DA PSORÍASE

Bruna de Sousa Brandão Lima, Marcus Alisson Araújo da Cunha, Marcia Silva de Oliveira

Psoriasis is a chronic inflammatory disease that despite its pathogenesis poorly understood, shows universal. It is described for centuries and the appearance of new cases has increased remarkably. It has long been classified as Hansen and the affected patients were isolated and treated with prejudice and marginalization by large part of society, fact modified when the disease began to be approached by their true characteristics and viewed as a disorder immune based on detections immuno-histopathological antibodies and complements deposited on the cornea plate psoriatic skin. Currently, the literature describes some biochemical and immune disorders as a basis for developing and disease causes, despite advances in scientific research of the disease, there is a need for more complete information about the main clinical manifestations of psoriasis, as well as the differential diagnoses, treatment options and prognosis.

REALIZAÇÃO DE EXAMES PREVENTIVOS DE CÂNCER DE MAMA POR MULHERES EM IDADE FÉRTIL NO MARANHÃO

Antonio da Costa Cardoso Neto, Elza Lima da Silva, Mônica Elinor Alves Gama, Marcia Silva de Oliveira

The control of breast cancer should prioritize prevention and early detection. We verify the performance of preventive screenings for breast cancer in women of childbearing age in Maranhão. This was a descriptive study with a quantitative approach, which evaluated the performance of preventive examinations in a sample of women aged 10 to 49 years. 3422 women were interviewed, distributed in 30 clusters (28 municipalities in the state) - this study presents data on 2309 women (67.5%). Of the respondents 30.3% reported practicing self-examination and 6.5% had undergone radiological examination of the breasts. Thirty percent reported the clinical examination of the breasts, and 18.2% held in Primary Care Family Health. We conclude that despite the self-breast examination, clinical examination and mammography are institutionalized measures known as preventive action for breast cancer in high-impact, Maranhão in the female population still recognize them and do not use.

Session PT1A

ESPAÇO URBANO E SUSTENTABILIDADE: UM BINÔMIO EM CRISE CONCEITUAL

Nivaldo Gerônimo da Silva Filho, Archimedes Azevedo Raia Júnior

Sustainability today assumes a prominent place among the most diverse subjects, because their understanding is reflected in the various areas of knowledge, in several instances and multiple modes of urban life. Thus, the theme leads many experts to understand or even try to develop solutions "remedial", or apply at present, plans and projects in the recent past were unsuccessful, when in fact the policies that would suck decisions "preventive." It is

no coincidence that the social and political speculations in this field acquired significance beyond their expectations. In other words, the transformation of cities began to determine human values, or, changes in ethical positioning and moral citizens. This paper aims to discuss the issue of sustainability in the Brazilian cities, with a more specific focus on urban space that demands a series of structural conflicts.

A MOBILIDADE URBANA E SEU CARÁTER SOCIOGEOGRÁFICO: DESMISTIFICANDO CONSENSOS - O CASO BRASILEIRO

Nivaldo Gerônimo da Silva Filho, Archimedes Azevedo Raia Júnior

The deepening debate about urban mobility is, and should always be marked by a theoretical core. Its complexity within the categories and analytical variables makes urban mobility a field ripe for discussion. What's really behind this term? What practical training experts at hand? It is possible to consider an issue that is becoming more complex in contemporary cities? Urban mobility can be defined among other terms, as a concept that depends substantially on the social space and geographic space without them there would be a palpable sense or even plausible. The role of the city and its self-sustainability is often questioned. The proposed scope of work is to discuss the main concepts from the perspective of various authors. Looking specifically, direct the discussion to the case of Brazil, showing the geographical implications for partner cities.

LOGÍSTICA HUMANITÁRIA COMO FUNÇÃO DETERMINANTE PARA MITIGAR DANOS CAUSADOS POR DESASTRES

Talita Fernanda Feltrin, Archimedes Azevedo Raia Júnior

The disaster scenarios are increasingly potentiated by climate change added to anthropogenic actions. Generating intensely abnormal conditions, these problems are aggravated due to the characteristics of fauna and flora, irregular use and occupation of the soil, lack of knowledge and awareness of the population about risk areas, unpreparedness and lack of planning in case of extreme events. The humanitarian logistics is a branch responsible for the logistics support of humanitarian actions during or after the occurrence of disaster, trying to meet the greatest number of victims. In view of this, through literature review, this paper aims to discuss the general factors for the occurrence of disasters such as climate change and population growth. Specifically, this seeks to highlight the function of humanitarian logistics as a factor determinant for assist victims during disasters. The considerations make it clear that humanitarian logistics provides immediate responses that can mitigate damage resulting from disasters.

ESTUDO EM DINÂMICA DOS FLUIDOS COMPUTACIONAL DO ESCOAMENTO DE OXIGÊNIO NA MICROVÁLVULA DE BELLOUARD

Roniere Leite Soares, José Jefferson da Silva Nascimento, Rômulo Feitosa Navarro, Antonio Tavernard Pereira Neto, Daniel Sales de Assis, Walman Benício de Castro

The aim of this theoretical study is to simulate and get the velocity profiles, temperature and pressure of the microvalve Bellouard (2008), open and closed, using the V14 program CFX (Ansys). This study can be used as an aid in the academic environment in projects related to biomedical engineering. The governing equations were solved using the finite volume method with a fully implicit formulation and numerical tetrahedral mesh. Results of the distribution of the profiles mentioned above are analyzed and discussed.

O USO DA ENGENHARIA DE AUTOMAÇÃO NA REDUÇÃO DO CONSUMO DE ENERGIA ELÉTRICA EM UM SISTEMA DE IRRIGAÇÃO POR PIVÔ CENTRAL

Paulo Henrique Cruz Pereira, Alberto Colombo, Giovanni Francisco Rabelo, Daniel de Alcântara Soares

This work describes the possibility of the use of Programmable Logic Controller (PLC) in set with Variable Drive Frequency (VDF), in systems of irrigation for central pivot, with the objective to increase the use of the efficiency of the electric energy, using nets Modbus-RTU, Zigbee and Compobus®, for communication between the equipment. The increase of the consumption of the electric energy in the agricultural way this directly associated with the technological development of agriculture is known that. Therefore the modern job techniques that optimize the

rational use of the electric energy is basic in all the fields. The experiment was conducted on the campus of the Federal University of Lavras - UFLA within the Ph.D. program in Agricultural Engineering, resulting in a 19% reduction in power consumption of the system, having support of CNPq and FAPEMIG.

GESTÃO DE RESÍDUOS SÓLIDOS: BARREIRAS ENCONTRADAS POR MICRO E PEQUENAS EMPRESAS

Emília Maria Martins de Toledo Leme, Helena Carvalho de Lorenzo, Maria Silvia de Moraes

The survey sought to assess the processes and activities of solid waste management in micro and small - chemical and metallurgical - enterprises of São José do Rio Preto (SP). Also sought to identify the environmental practices used by the selected companies in order to verify the main barriers to the implementation of a proper solid waste management. From the methodological point of view, this was an exploratory study. We used data from secondary and primary sources, the latter having been obtained through a semi-structured questionnaire with open and closed questions. The results show that micro and small enterprises face difficulties that stand as strong barriers to proper management of their industrial solid waste. This lack of appropriate attitudes regarding the disposal of solid waste in small industrial enterprises, given their economic importance throughout the national territory, tends to deepen environmental issues.

PROPOSTA DE UM SISTEMA DE APOIO EM SAÚDE À DISTÂNCIA NA AMAZÔNIA, USANDO BANCO DE DADOS AUTO-CONTIDO, BASEADO EM INFRAESTRUTURA DE MULA DE DADOS

Paulo Roberto Bastos de Almeida, Almir Monteiro Junior, Mauro Margalho Coutinho

Given the lack of telecommunications infrastructure in remote areas of the Amazon, the levels of technological exclusion in these areas are very high. An alternative, economically feasible, to minimize this gap, is the use of Delay Tolerant Networking for the provision of services, especially in health care. This study proposes a health system that aims to record the distance and get medical checkups in a database self-contained using Data MULE networks.

Session PT1B

A IMPORTÂNCIA DE SE CONHECER A ESCLEROSE LATERAL AMIOTRÓFICA (ELA): UMA REVISÃO BIBLIOGRÁFICA

Karine Paixão Rocha, Marcia Silva de Oliveira, Marcelle Bastos Pacheco, Lidiane Bezerra Rodrigues

Lateral amyotrophic sclerosis (ALS) and motor neuron disease slowly progressive, severe and incurable, also known as Charcot. It is suggested multifactorial cause, but not fully elucidated. The main symptoms are muscle weakness, fasciculations, hyperreflexia, Babinsky sign, cramps and salivation. Often manifests itself in males in approximately the fourth decade of life, but there are case reports of young people. The diagnosis becomes less be confused early on in many cases, with spondyloarthropathies. The only drug registered as palliative therapy is Riluzole. Death usually occurs by cardiorespiratory arrest. We tried to relate the importance of understanding the disease and prevalence data by gender, age and ethnic distribution.

EFEITOS DO USO INADEQUADO DE ERITROPOETINA (EPO) RATTUS NORVEGICUS

Ana Carolina Oliveira das Neves, Marcia Silva de Oliveira, Jéssica Aguiar Carneiro, Liliane Moreira Gomes

Erythropoietin is a hormone produced by the kidneys and liver, responsible for the induction of maturation of red blood cells which are responsible for transporting oxygen to tissues. Exist reports of its use by athletes of endurance improperly to achieve a better performance in his evidence. This project has a objective, research the possible damage caused by improper use of this substance. With this, *Rattus norvegicus* will be treated with doses of erythropoietin 3mg per day during one month, and subsequently sacrificed for histologic analysis of liver, kidneys, skeletal muscle and bone marrow, biochemical and hematologic. It is hoped that the analyzes show illuminating results about the effects of their use and other possible applications.

EFICÁCIA DO PICOLINATO DE CROMO (PC) NO EMAGRECIMENTO E SUA TOXICIDADE EM RATTUS NORVEGICUS

Jéssica Aguiar Carneiro, Marcia Silva de Oliveira, Ana Carolina Oliveira das Neves, Liliane Moreira Gomes

Chromium is an essential mineral for human life, taking joint action with insulin. However, despite their biochemical and metabolic description, there are still few reports and information about their use. Therefore, this project has as main purpose to obtain more information about the effectiveness in weight loss and possible changes that may cause physiologically, to organs such as liver, kidneys and pancreas, and it may entail biochemically by searching with wistar rats where will be administered doses of chromium picolinate (CP) in a month, and then the rats will be sacrificed to be done histologic blades and biochemical analyzes.

AVALIAÇÃO DA ALTERAÇÃO HORMONAL EM RATTUS NORVEGICUS APÓS ADMINISTRAÇÃO DE TRIBULLUS TERRESTRIS (TT)

Adelson Alves Machado, Marcia Silva de Oliveira, Darlles Bruno de Sousa Pereira, Luiz Gustavo Ferreira Costa, Liliane Moreira Gomes

Tribulus terrestris (Tt) is a plant of Indian origin, used to treat urolithiasis, also existing description on its ability to invigorate fertility, sexual performance in men and decrease symptoms of fatigue. Currently there are no clear descriptions about their chemical nor its specific form of use. Thus this project aims to conduct a histopathological evaluation and physiological Rattus norvegicus after administration of the commercial formula of Tt. The animals receive one tablet of 100mg orally Tt per day and analyzed for behavior, testes size. After treatment / management occurs biochemical analysis of testosterone and histopathological evaluation of the kidneys, liver, skeletal muscle and testis, where we hope to obtain evidence on the increase in hormone levels, increased muscle mass and structural impairment of the tissues studied.

EFEITOS FISIOPATOLÓGICOS DA ADMINISTRAÇÃO DE QUITOSANA EM RATTUS NORVEGICUS

Darlles Bruno de Sousa Pereira, Marcia Silva de Oliveira, Juliana Paiva Lins, Luiz Gustavo Ferreira Costa, Adelson Alves Machado, Liliane Moreira Gomes

Hitosan is polymer that can exhibit characteristic nontoxic since it is derived in nature. By presenting this characteristic has been used in various fields of knowledge through various research on its applicability. Chitosan capsules are administered at 500mg Wistar rats and after two months of treatment will be sacrificed for histological liver, intestine and phagocytosis assay. Aiming to analyze the use of this drug is able to assist in weight loss, presents toxicity to cells, its role in specific organs and changes in the behavior of animals. The results described would be of great value in understanding the behavior of chitosan and its application in the medical field.

AVALIAÇÃO DO DEHIDROEPIANDROSTERONA (DHEA) NO GANHO DE MASSA MUSCULAR E COMPROMETIMENTO FISIOLÓGICO EM RATOS

Luiz Gustavo Ferreira Costa, Marcia Silva de Oliveira, Darlles Bruno de Sousa Pereira, Adelson Alves Machado, Liliane Moreira Gomes

DHEA (dehydroepiandrosterone) is a precursor of the hormone testosterone, produced by the adrenal glands, released by the pituitary and testicular steroidogenesis in response to corticotropin stimulation. For lack of literature that describes their benefits, this has been used for nutritional supplementation indiscriminately. Therefore the objective of this study is to examine whether DHEA compromise the function of vital organs such as kidneys, liver, skeletal muscle and nervous system if its use can alter gain muscle mass and increase hormone levels. For this Wistar animals are treated with DHEA 25 mg tablet daily for one month and then sacrificed for biochemical analysis of cholesterol, estradiol, testosterone, androstenedione and histopathologic evaluation of the kidneys, liver, skeletal muscle and nervous system. Hoping that the results reveal clarification for future administration of DHEA.

SEQUENCIAMENTO DE DNA: MÉTODOS E APLICAÇÕES

Welika Faria Santos, Marcia Silva de Oliveira, Lélia Cristina Tenório Leói Romeiro, Marcus Alisson Araújo da Cunha.

The DNA sequencing is a procedure which involves a series of complex biochemical methods which aims to determine the order in which the nitrogenous bases adenine (A), cytosine (C), thymine (T) and Guanine (G), are arranged in the genetic material of organisms. There are several methods available and one of the most used is the "dideoxy method" of "chain terminators" or "Sanger" whose inventor was Frederick Sanger in the 70s. From 2005, as pyrosequencing, developed by Mostafa Ronaghi and Pål Nyhren came the technology of next generation sequencing (NGS) that have evolved rapidly. The system 454 was the first NGS platform to be commercialized. The Solexa platform has as innovation in vitro cloning of fragments into a solid glass platform. In the SOLiD system, unlike all other cases, the reaction is catalyzed by the enzyme DNA ligase, and DNA polymerase not. Another method, published in 2012, uses sensors on microchips, created by Ion Torrent to detect this chemical signature. Oxford Nanopore Technologies also presented this year, in which a microchip incorporated a pore in a membrane protein synthetic polymer. In all the processes used, the ultimate goal of the DNA sequencing is the reading and identification of the exact order in which they are the nitrogenous bases, which determines each gene.

Session PT2A

CONSUMO ENERGÉTICO E EMISSÕES DE GASES DE EFEITO ESTUFA PROVENIENTES DO USO E OPERAÇÃO DE EDIFICAÇÕES DE ESCRITÓRIOS DE ALTO PADRÃO NA CIDADE DE SÃO PAULO

Haroldo Luiz N. da Silva, Sérgio Ricardo Lourenço

Buildings represent one of the most significant sectors in energy consumption, the major contributions of greenhouse gases emissions, and occupy prominent role in the political economy of world energy. São Paulo city, the largest business center in Brazil with strong growth in upscale real estate market, denotes the need for greater regulation and public policies. As a starting point, a clear understanding of current energy use and resulting emissions should be achieved. Based on actual consumption of the high standard office buildings, this paper presents through statistical analysis of multiple regression models, the estimated emissions of greenhouse gases from energy use based on emission factors associated with the production of electricity, as well as potential mitigation due to the values achieved and stock of existing buildings.

ASPECTOS DE SEGURANÇA NA UTILIZAÇÃO DE FERRAMENTAS ABRASIVAS NO PROCESSO DE RETIFICAÇÃO FACE AO DESENVOLVIMENTO TECNOLÓGICO DE MÁQUINAS-FERRAMENTAS

Lucas Benini, Walter Lindolfo Weingaertner

The large number of variables involved in the grinding process and the use of numerically controlled machine tools has generated a new claim on safety procedures for this manufacturing process. Besides, the development of new materials to be machined, cutting tools with improved properties, as well as the increased cutting power in grinding machines demand new requirements on safety guidelines of the abrasive processes. The purpose of this paper is guide and instigates grinding machine operators to the adoption of safety procedures, considering the new technologies applied on the grinding process over the years. The topics discussions of this paper are based on the safety standards recommendations used for grinding wheels. Using of safety practices enables the risks minimization to the operator, independently of abrasive process variation and can be applied to most jobs and work situations.

ANÁLISE DA CAPACIDADE DA REDE NACIONAL DE GÁS NATURAL À LUZ DO PLANO DECENAL DE EXPANSÃO DE ENERGIA

Claudemir Duca Vasconcelos, Sérgio Ricardo Lourenço

Brazil is the sixth worldwide economy and directs its energy matrix to use of energy with lower environmental impacts e.g. the natural gas. This study aims at identifying the capacity of the natural gas pipeline network comparing it with 2020 decennial energy plan issued by Ministry of Mines and Energy (2011). The linear programming was used to calculate the network maximum flow. The results show capacity of 213 and 227 MM m³/day at reception and delivery respectively. The current flow represents 75% of idle capacity. It was identified idleness in the Nordeste and Espirito Santo networks and lack of capacity in the Sudeste and Sul networks. Analyzing the 2020 target it was identified idleness in the Nordeste and Espirito Santo network, areas of Vitória, Recife, Rio de Janeiro, Maceió, Aracaju, Salvador, Natal and lack of capacity in the Sudeste and Sul network, areas of São Paulo, Belo Horizonte and Fortaleza.

INFLUÊNCIA DA TEMPERATURA DE STARTUP NA EFICIÊNCIA ENERGÉTICA DE FORNOS PARA FORJAMENTO DE PEÇAS DE AÇO

Douglas Alves Cassiano, Ronaldo Pereira Baracco, Sérgio Ricardo Lourenço, Fernando Gasi

This study was conducted in a metallurgical industry sector to evaluate the energy efficiency of industrial furnaces used in forging steel parts. The natural gas consumption was studied relative to the amount of forged steel parts by analyzing the energy efficiency of the process in two distinct levels of temperature initiation from the heating cycle: temperatures above 800 ° C and temperatures up to 300 ° C . The assessing of the energy efficiency of the process was conducted with the use of physical-thermodynamic indicators. The values of consumption of natural gas were converted into energy values in order to obtain physical-thermodynamic, indicators which were arranged in graphical form for trend analysis. At the end of the study was possible to evaluate the possible points of liable to operational improvement and define the actions to increase energy efficiency during the furnace loading of steel parts.

ANALYTIC HIERARCHY PROCESS (AHP): APLICAÇÃO EM NOVOS GASODUTOS NO BRASIL

Valter Librais Junior, Sérgio Ricardo Lourenço

World trends in, the Brazilian natural gas increased significantly and this trend will hold through 2030, according to the Brazilian energy matrix issued in 2007 by the Ministry of Mines and Energy, to meet this growth, it is necessary to expand the gas pipeline network. To meet this expansion, new gas pipelines need to be deployed. In this context, the study aimed at assisting decision makers in selecting an alternative for a new pipeline using the criteria under the concept of the Triple Bottom Line (TBL), which seeks a balance between the economic, environmental and social. Aiming to minimize the subjectivity of the criteria used in the comparison of alternatives and proposals, the method Analytic Hierarchy Process (AHP) is applied, because it uses advanced and represented by relative weighting. The results of this study could be used as a tool for decision makers in future gas pipelines in Brazil.

ANÁLISE DO MAPEAMENTO DO FLUXO ENERGÉTICO EM PROCESSOS DE PRODUÇÃO E AVALIAÇÃO DOS INDICADORES ENERGÉTICOS PARA TOMADA DE DECISÃO RELACIONADAS A EFICIÊNCIA ENERGÉTICA

Jorge Kawamura, Sérgio Ricardo Lourenço, Ligia Meloni Meneghetti

Most companies don't have an energy flow mapping in their industrial production lines, this way higher energy consumption are not identified. This work shows the importance of energy flow mapping in the industrial production lines and their energy indicators that can be used for energy flow analysis of energy, technical – social – economic analysis, and strategic reports generation. The results of energy flow mapping analysis and the evaluation of energy indicators will to be help to take decisions on management and plans/policies about energy efficiency actions in the Brazilian industry. In this stage actions were identified and classified in some american industry as reference to other analysis. Data analysis with software tools (simulators) will be propose as future works

ANÁLISE DO USO DE SIMULADORES ENERGÉTICOS PARA PROJETOS DE SISTEMAS ENERGÉTICOS HÍBRIDOS

Jorge Kawamura, Sérgio Ricardo Lourenço

An increasing number of energy projects that use renewable sources have being developed around the world, such as solar panels and wind turbines, biomass and others. Some of the construction projects were developed with help of simulators such as Homer. This study analyzes the variables contained in the simulators and verifies the performance of these variables to help in decision making. Use this tool also allows many technical and economic indicators configuration in various sources used in the project, allows too integration of several technologies enabling the correlation analysis of these indicators, and as result to see which moment a technology may be more advantageous than others. The contribution of this work is to show the importance of using the simulator and its variables as auxiliary tool for the development of hybrid energy systems design and decision making related to project feasibility.

Session PT2B

A DANÇA COMO TERAPIA NO COMBATE AO ESTRESSE FEMININO: EXEMPLO DA DANÇA DO VENTRE NO BRASIL

Cacilda J. Andrade, Márcia R. V. Nunes, Christian Dufour

This paper explains how the practice of dance can be an effective approach to enhance the life quality of modern people, reducing stress levels, increasing connectivity to their community and especially by increasing their confidence and self-esteem. It explains common causes of stress for women and how it can be relieved through the practice of belly dance, by improving self-esteem, body awareness, physical and mental balance and confidence of the practitioner. The paper also makes a literature review containing case studies where the use of dance as therapy is really shown to be effective in improving health and living conditions of people of all ages. Examples taken from the belly dance community of Brazil are given to support these claims.

TÉCNICAS EM FOTOGRAMETRIA E SENSORIAMENTO REMOTO PARA ANÁLISE E CLASSIFICAÇÃO DE FEIÇÕES EROSIVAS NA BACIA DO CÓRREGO DO TUCUM (SÃO PEDRO - SP)

Karyna D'Onofre Neves, João Vítor Roque Guerrero, Marcilene Dantas Ferreira

Erosion is a natural process that modifies the landscape is slowly but accelerated by human action and therefore the knowledge of the erosion of their status, progress and impact environmental and human is extremely important to implement appropriate remedial measures. These measures are developed based on the analysis and characterization of erosion and methods used for this are mainly Photogrammetry and Remote Sensing. In the work presented below such methods were extremely important to the development of research because it allowed the analysis of the erosion process through images of areas since the year 1962. Performed work photointerpretation erosion Basin located in urban stream Tucum in San Pedro - SP, we observe the evolution the erosion over the years accompanied by urbanization and area occupation. Finally, we conclude the importance of geotechnology and plans managers and directors suitable for occupation suitable for such areas.

CADEIA DE SUPRIMENTOS SOLIDÁRIA A PARTIR DE UMA COOPERATIVA DE RECICLAGEM

Geraldino Carneiro de Araújo

The objective is to describe the solidarity supply chain organized from a recycling cooperative. Recycling cooperatives, within the context of the solidarity economy, have an important role in the proper disposal of solid waste and the social inclusion of people. We performed a descriptive empirical research with a qualitative approach, we conducted a case study in COOREPA – Cooperativa Recicla Paranaíba, which has highlighted state, in data collection were conducted observations, interviews and document analysis. The results show that the amount of the cooperative are housewives, businesses and industries who voluntarily donate recyclables to the cooperative. This industry, separates, press and marketing materials. Downstream companies are buying the materials, forming prices, processing industries and middlemen who buy and resell (glass, scrap metal and other materials). The cooperative relationships with other agents are solidified, but not static.

ANÁLISE DO PADRÃO ESPACIAL DO DENGUE EM 2011 NO ESTADO DA PARAÍBA

Jodavid de Araújo Ferreira, Ronei Marcos de Moraes

Dengue is a viral disease transmitted by the female mosquito of *Aedes* gender. It is considered a worldwide public health problem, which returned in recent decades due to inadequate infrastructure and population growth. This work analyzes the spatial distribution of that disease in the State of Paraíba for the year 2011, using the Scan statistic over epidemiological data. Beyond that, spatial analysis were performed by gender and for the incidences of the cases. Priority areas needing attention were identified.

PRÁTICA MUSICAL CONJUNTA COMO RECURSO TERAPÊUTICO EM SAÚDE PÚBLICA

Paulo Roxo Barja, Adriana Marques Barja

Since 2011, musical activities have been employed as a therapeutic resource at UNIVAP. The activities consist in joint sessions of music listening, followed by musical practice involving the participation of patients, their caregivers, students, staff and researchers. The work team includes a musician-researcher, an occupational therapist and a physiotherapist, as well as undergraduate students. The project aims to establish a methodology for application of music in the clinical environment, offering to the patients moments of interaction with other patients and caregivers, taking into account their tastes and personal skills, in order to increase their self-esteem and level of socialization. The results obtained include increased communication among the participants, with the group being invited to present music sessions in various events at the university. In this way, the joint musical practice has generated benefits not only for the patients but also for the whole university, increasing integration between staff and users.

EFICIÊNCIA ENERGÉTICA NO SETOR PRODUTIVO DE UMA INDÚSTRIA DE INJEÇÃO DE PLÁSTICOS

Miguel Ângelo Recio Calvo, Sérgio Ricardo Lourenço, Douglas Alves Cassiano

The electricity consumption and costs grew in Brazil after 2000, thus justifies and motivates a search for energy efficiency. The objective of this paper is to present a study of the application of indicators to assess energy efficiency in an industry of plastics injection. A sampling methodology was data electricity consumption and production of a particular product injected. We applied the indicator specific energy consumption and energy efficiency indicator for the analysis of energy efficiency. The survey results allowed: a discussion of how to evaluate, compare with the parameters themselves and international. Identify possible improvements as an energy savings of over 10%. Concluded that applying the proposed methodology can identify energy savings and parameters for decision making in energy management and industrial.

A UTILIZAÇÃO DE ENERGIA ELÉTRICA INDUSTRIAL NA CIDADE DE SANTO ANDRÉ E SUA INTER-RELAÇÃO COM A EXPORTAÇÃO E O PRODUTO INTERNO BRUTO (PIB) BRASILEIRO

Charles Couto de Camargo Júnior, Sérgio Ricardo Lourenço

This paper will analyze the electricity consumption industrial, the evolution in the export and import of Santo André city and the Brazilian GDP, based on linear regression, seeking to demonstrate the inter-relationship between export and energy consumption. With the indicators used in the qualification and the kind of export industry, we can increase the energy efficiency of production processes, with consequent reduction in energy demand and costs, making products more competitive in international market.

Session PT3A

DIAGNÓSTICO SOCIOECONÔMICO E AMBIENTAL EM MICROBACIA HIDROGRÁFICA LOCALIZADA EM UM NÚCLEO DE DESERTIFICAÇÃO

Danilo Duarte Costa e Silva

The human pressures on natural resources motivated by the need for survival, especially in places deterioration (such as areas threatened by desertification), generate a need of analysis that includes socioeconomic and environmental aspects. In order to analyze the socioeconomic and environmental deterioration in the Riacho do Trapiá microbasin, located in a nucleus of desertification in the state of Rio Grande do Norte - Brazil, was applied the matrix Leopold adapted. The indices calculated for deteriorating social, economic, technological, environmental and socioeconomic were 29.55%, 81.08%, 58.82%, 39.59% and 30.00% respectively. As noted the microbasin of Riacho do Trapiá is at a high deterioration process, over 50% of the affected area. The deterioration in the economic factor of 81.08% reflects the poor living conditions of the local resident.

AVALIAÇÃO DOS INDICADORES DE DESENVOLVIMENTO DA VEGETAÇÃO EM ÁREAS EM RECUPERAÇÃO

Deise Cristiane Trevisan, Eduardo Jorge de Britto Bastos, Maria Regina de Aquino-Silva

Mining activities imply in vegetation destruction and, in many cases, the superficial layer of the soil is also removed, therefore the remaining soil is destroyed by eroding processes. Thus, recovery actions such as reforestation are legally required. This study was accomplished at Poço farm (Jacarei/SP/Brazil) that in the past (1970-1990) showed companies of sand's extraction in part of its area. The aim of this study was to evaluate the development indicators of vegetation in order to verify the effectiveness of recovery actions taken by FVE (Proc. SMA 73.266/98) in two areas with different managements: direct tillage and introduction of top soil.

DESENVOLVIMENTO EXPERIMENTAL DE UMA MESA ROTACIONAL PARA SIMULAÇÃO DE FENÔMENOS ATMOSFÉRICOS

Mauro Vanderlei de Amorim, Carine Aparecida Assis da Silva, Ana Paula Cota Lima, Agnaldo Nogueira Turina

We developed a low-cost experimental apparatus where it is possible to simulate more than 40 experiments in the areas of Agrometeorology, earth sciences, meteorology, oceanography, and physical development engineering. In this study we investigated the effect on the teaching-learning process by presenting the experiment and explore the experimental simulation of atmospheric phenomenon called tornado particularly in Brazil where we evaluate impact on agriculture.

POLÍTICAS PÚBLICAS DE SEGURANÇA VIÁRIA PARA O TRANSPORTE DE CRIANÇAS: O CASO BRASILEIRO

Cintia Isabel de Campos, Archimedes Azevedo Raia Júnior

The actions of traffic safety, result of appropriate public policies, play today a key role in reversing the tragic scenario of road accidentality in the world. Based on the tripod of traffic safety, several countries have invested in actions in the areas of education, engineering and enforcement. The pandemic that reaches from developing countries to developed ones, cause thousands of victims annually, irrespective of age, gender or economic class. As a general objective this work presents, through exploratory research, the current Brazilian road accidentality scenario involving children. Specifically, it seeks to address what are the current policies and public initiatives to mitigate the traffic fatality of children, highlighting campaigns and the Resolution 277/2008, which provides for the use of restraint systems for transporting children. The results show a direct relationship between the policies and actions and the decline in infant mortality.

EDUCAÇÃO POSTURAL INTEGRADA: MOTRICIDADE, COGNIÇÃO E EMOÇÃO

Karen Valadares Trippo, Arnaud S. de Lima Júnior, André Ricardo Magalhães

This paper aims to demonstrate the relationship between cognition, emotion and motor as a basis for proposing a program of postural education in the school environment that represents more than one method, a technique or protocol, but is directed to the subject, considering the complex condition human and not merely a standardized approach and purely mechanical or technical approach. It is, then, the initiative to create an education program involving postural therapist in educational-preventive action so paid up and functional based on the inter-relationship between motor skills, cognition and emotion, with a perspective Wallonian in order to establish a thematic approach. The results of this study conducted with 25 students, between nine and fourteen, duly authorized by their parents, showed evidence that Postural Education from the perspective of this program developed, leveraged a better understanding on the part of the school community of the importance of this in their lives.

SISTEMA DE PROCESSAMENTO DE SINAIS E GERAÇÃO DE IMAGENS QUÍMICAS PARA SENSORES LAPS, FMOS E TAOS BASEADO EM DISPOSITIVOS LÓGICOS PROGRAMÁVEIS FPGA

Daniela S. Santos, Mauro S. Braga, Walter J. Salcedo

The control of the environment in real time has mobilized the scientific community to propose devices and systems versatile, portable and network communications for use in situ. For this reason, this paper reports the development of an automatic acquisition system, signal processing, and chemical imaging for sensing devices of the scanning

pulsed light (LAPS), MOS devices enabled with photoluminescent molecules (FMOS) and optoelectronic devices activated with photoluminescent molecules (TAOS). The integrated acquisition and processing system was developed using virtual instrumentation technology and FPGA on a plate "Single Board RIO mod. NI-9631" of the "National Instrument Company". The proposed system performs controls the scanning of the excitation light sensors, dilution of the gases, acquisition of sensor signals using a lock-in signal processing and data transmission via internet network implemented in all "sbRIO-9631".

SENSORES ÓPTICOS FOTOLUMINESCENTES DE BAIXO CUSTO PARA DETECÇÃO DE OXIGÊNIO APLICADOS EM SISTEMAS DE CONTROLE E MONITORAMENTO AMBIENTAL

Mauro S. Braga, Daniela S. Santos, Victor F. Borges, Walter J. Salcedo

This work reports the development of photo-luminescent sensors for oxygen detection using thin films of polystyrene doped with Platinum octaethylporphyrin dye, deposited directly on the surface of commercial optoelectronic and MOS devices. This manufacturing strategy allowed to integrate the sensor active part with the detectors of photoluminescent emission (optoelectronic and MOS device). The detection principle is based on quenching the photoluminescent emission of Platinum octaethylporphyrin molecule by interaction with oxygen molecules from the environment. The manufactured devices showed high sensitivity to oxygen in the range of 0 to 20% O₂, in both cases. This new fabrication strategy showed to be promising for a future integration process of these devices in embedded electronic systems, with acquisition capacity and signal processing, giving rise to a portable low cost system that can be applied to the monitoring of dissolved oxygen in rivers.

Session PT3B

AValiação DO PERFIL HigIÊNICO-SANITÁRIO DOS ESTABELECIMENTOS COMERCIAIS E MANIPULADORES DE CARNE E DERIVADOS EM FEIRAS LIVRES

Simone Silva Machado, Luanna Alves Conrado, Giovanna da Silva, Angel José Vieira Blanco

The free markets, a traditional local of food marketing, is a frequently cause for concern and caution, because of their hygienic and sanitary deficiencies. In free markets, foods of animal origin and their derivatives, are exposed under unsanitary conditions, from environmental contamination. This study evaluated the profile of hygiene and sanitary establishments that sell meat and meat products in fairs of the Inhumas, city of Goiás State. Notice that the establishments did not achieve the requirements of sanitary-hygienic established. Based on the results was developed a didactic book, emphasizing the requirements do not comply. After the distribution of material, new evaluation was conducted. The mean compliance with the requirements was 21.18% and 23.25% respectively for the first and second evaluations. The analyzed establishments showed precarious hygienic and sanitary conditions, even after becoming aware of hygiene standards.

AValiação DA ROTULAGEM DE ALIMENTOS DIET E LIGHT

Simone Silva Machado, Taynara Rezende Silva, Nayanne Rodrigues de Oliveira, Angel José Vieira Blanco

The relevance of diet and light food labeling and the close relationship between these products and consumer health, it is essential to know the care labels legal determinations. The objective of this study was to identify the adequacy of information contained in the labels of diet and light products to Brazilian law. To achieve this purpose, 41 products were selected from the Inhumas City markets. Some of the analyzed labels displayed irregularity such as a incomplete/unreadable nutritional information (7,1%) and absence of the medical information (14,3%). As main conclusion, it is possible to affirm that such inadequacies can imply in risks to the health of individuals and disrespect of consumer's rights. It is strongly recommended the rigorous exercise of surveillance for the effective fulfillment of the legislation.

AVALIAÇÃO QUALITATIVA DE COMUNIDADES FITOPLANCTÔNICAS EM VIVEIROS DE PESQUE-PAGUE E SUA RELAÇÃO COM A SAÚDE PÚBLICA EM INHUMAS-GO, BRASIL

Angel José Vieira Blanco, Gustavo de Paula Sousa, Josué Nazário de Lima, Thaynara de Moraes Maia, Simone Silva Machado, Lorenna Silva de Oliveira Costa

The Fish-pay establishments represent a type of aquaculture that has become common in many regions of Brazil. Some of these establishments offer their fish in their restaurants while providing sport fishing and therefore should have their nurseries growing properly treated. These water bodies deserve special attention since improper handling can lead to eutrophication processes and the consequent multiplication of harmful algae to fish and also to those the consumers. In the city of Inhumas - Goiás - Brazil and surroundings there are many Fish-pay establishments, in farms and in urban perimeter of the city. Accordingly, the purpose of this study was to evaluate qualitatively the composition of phytoplankton in four of these establishments. The microscopic analysis revealed 41 different genera of microalgae, of which 15 belong to the Cyanobacteria, thus indicating that the studied environments lies in proper sanitation to shelter human activities.

AVALIAÇÃO DOS IMPACTOS AMBIENTAIS NOS SEDIMENTOS DA BARRAGEM DO RIO MEIA PONTE DO MUNICÍPIO DE INHUMAS - GO

Josiene Barcelo da Silva, Elisangela Cardoso de Lima Borges

A study of the physical and chemical characteristics of surface sediments (0-15 cm profile) reservoir in two seasons was performed to evaluate its impact on the environment. Four sampling points were selected upstream the reservoir, being three in the reservoir and one in the river. Ambient Parameters (phosphorus, pH, organic matter, humidity and granulometry) were evaluated and analyzed by Principal Component Analysis (PCA). In the PCA with the season data was retained 77,5% variability of data. There wasn't seasonal classification. Phosphorus showed influence of constituents of the matrix and a narrow dependence with finer particle size, organic matter and humidity, corroborating important biogeochemical mechanisms. Moreover, for sediments in the reservoir sampled prevails a sandy particle size arising from external sources. The construction of the reservoir and human activities has caused significant impacts to the environment and changes in biogeochemistry of sediment, resulting in a decrease in sorption nutrients / contaminants.

ANÁLISE FÍSICO-QUÍMICA DO CÓRREGO GOIABEIRAS NO MUNICÍPIO DE INHUMAS-GO

Daiane dos Santos Mamede, Elisangela Cardoso de Lima Borges

The county of Inhumas has seven (07) affluents that feed the Meia Ponte river whose waters supply about 50% of the population of Goiás and who has been suffering anthropogenic environmental degradation (creek basin): Cemitério, Pé de Pato, Goiabeiras, Grotão, Bambuzinho, Saleiro and Santa Rita. Of the seven (07) affluents mentioned above, was chosen for analyzes physico - chemical Goiabeiras creek basin to contribute to the SANEAGO in water treatment Inhumas and the creation of a database on environmental quality. Analyzes physical - chemical of the Goiabeiras creek basin was evaluated by the method of principal components. High phosphorus content at points located on ranches and farms sampled was observed in the rainy season. Total iron in all points collected, was detected in both stations levels over those allowed current Brazilian legislation (CONAMA 357/2005). Chloride separated the sample collected at the farm (Point 1) the other located within the municipality.

EDUCAÇÃO AMBIENTAL NO CONTEXTO TECNOLÓGICO: CRIAÇÃO DE UM FLIPERAMA UTILIZANDO LIXO ELETRÔNICO

Alyson Rodrigo de Oliveira, Emerson Rivelino Cidral, Fábio Longo de Moura, Francieli Aparecida Ferreira, Ivo Marcos Riegel, Lucas Colossi, Victor Freitas de Azeredo Barros

The Education in the classroom needs novelties more attractive to students. An ever more intense student with content enables better understanding and presents new opportunities for application of knowledge. In a computer technician course, professional area always in evidence, it becomes necessary to engage students with content related to other fields of knowledge, such as the environment. This work combines these students an overview involving multidisciplinary technological content, environmental as well as social. This article reports the development of a didactic pedagogical approach in the discipline of Research in Computer Science at the Federal Institute of Santa Catarina (IFC) - Campus Araquari in Santa Catarina, SC, Brazil, focused on the development of a pinball using discarded materials.

CONSTRUÇÃO DE OBJETO DE APRENDIZAGEM PARA EDUCAÇÃO AMBIENTAL: IMPACTO SOCIO-AMBIENTAL DO LIXO ELETRÔNICO

Thays Monielle da Silva, André Luis Bernadino Lucas, Victor Freitas de Azeredo Barros, Lorena Silva de Oliveira Costa

With the use of technology, the computer has contributed, day after day, as a tool for building and developing concepts in the educational process, providing new practices in teaching and learning, making it increasingly affordable, pleasant and attractive for both students and for teachers. An example is the development of learning objects (OA). This research project aims to develop a learning object to work teaching chemistry in high school with the theme "Junk". For this development it is necessary to make a historical survey of education in Brazil, as well as identifying the use of media technology in education, bringing important benefits in the process of teaching and learning, stimulating students to seek more and more knowledge and thus make the education increasingly interactive and interesting for students.

Session PW1A

ANÁLISE DAS CONDIÇÕES DO RISCO EROSIVO NO ENTORNO DO RESERVATÓRIO DE BALBINA - AM

Adorea Rebello da Cunha Albuquerque, Annunziata Donadio Chateaubriand, Maria Clara Macedo Pereira, Jacqueline Carril Ferreira da Rocha, Levi D'Araújo Nogueira, Elizabeth Ferreira Cartaxo

Analysis on erosive risk conditions assist the providence of mitigation techniques and control of landslides, which may impact water resources or lead to great tragedy. In this context, the present article describes a study of the physical properties of soils in the vicinity of Balbina hydroelectric plant in Presidente Figueiredo - AM. The methodology involved georeferencing of local collection of soil samples with GPS - Garmin Etrex, identification of size fractions by the pipette method (Embrapa), systematization and percentages classification of the fractions. The results indicated that the points of greatest risk of erosion are at the base of slopes and embankments. The rates presented silt intervals of 39.42% to 48.42% for tracks hillsides, where erosion was focused. For top areas clay values was evidenced between 44.13% to 58.73% zones of appearance of smaller erosive incisions.

ESTUDOS PARA O DESENVOLVIMENTO DE UM AMBIENTE SAUDÁVEL EM UMA UNIVERSIDADE AMAZÔNICA: A EXPERIÊNCIA DE ALUNOS DE ENGENHARIA E DESIGN

Lissiane Melo Jacinto, Annunziata Donadio Chateaubriand, Mariana Ribeiro Evangelista, Viviane Paludo Schultz, Olímpio Melo Jacinto, Francisco Fagner do Rego Cunha, Déborah Luiza Rodrigues França

This presents the procedures and results of characterization studies designed to implement a knowledge base and preparing the action plan of Faculdade de Tecnologia, Universidade Federal do Amazonas (FT / UFAM), academic unit built in the area primary Amazon. Developed by students of Engineering and Design, members of the Extension's Curricular Activity ACE Nosso Ambiente UFAM have had as objective to contribute to the academic formation and the improvement of the environment of this college by identifying and characterizing the uses, limitations and potential of its physical structure and the perception of its members - teachers, students, technical and administrative staff. The primary data generated from surveys "in loco" and interviews, and secondary from various sources were systematically and critically analyzed and resulted in a technical report. Thus, it is expected to have contributed to the training of those involved and to a healthy environment in FT / UFAM.

FERRAMENTAS PARA CARACTERIZAÇÃO DE ÁREA URBANA RESULTADO DE DIFERENTES PROCESSOS DE OCUPAÇÃO

Ana Maria Bezerra de Souza, Annunziata Donadio Chateaubriand, Ítalo Senna Viana de Medeiros Nunes, Raphael Frota da Silveira

This paper introduces the tools used in the development of urban space characterization studies, result of different types of occupation, their results and importance for environment participatory management process implementation as well. Developed by Civil Engineering students for degree practice discipline and extension action, these studies start on predetermined sector division and sub data acquisition about the region and

government law relevant - Master Plan, municipal codes and those related to the environment management process. Images recording from buildings, roads, public places, ways of packaging and waste disposal, and others were made, in addition. The data was organized by place and the result were several Thematic Maps. It was built with high-resolution images, spreadsheets, computer graphics and geo process.

PROPOSTA DE SETORIZAÇÃO PARA CARACTERIZAÇÃO E GESTÃO AMBIENTAL PARTICIPATIVA DE UMA ÁREA URBANA RESULTANTE DE DIFERENTES PROCESSOS DE OCUPAÇÃO, MANAUS (AM)

Annunziata Donadio Chateaubriand, Ana Maria Bezerra de Souza, Amanda Passos, Ana Claudia Cabrinha Gama, Elbens Takatani, Elias Santos Souza, Elielton Barroncas Maquiné, Guilherme Vieiralves, Ítalo Senna Viana de Medeiros Nunes, Jéssica Thaís Batista, Karoliny Ataíde Benton, Luiz Gabriel Martins Correia, Maria Clara Macedo Pereira, Matheus Pena, Raphael Frota da Silveira, Renato de Araújo Bolf, Thayla Jamylle Martins Bonfá

This paper introduces studies to establish a procedure method for sector division of an urban area, which is result of different occupation process. This area is close to the third green fragment (Amazon primary forest) in urban area in the world. Those studies were developed by civil engineer students from a public university. They consider anthropic and physical aspects. These aspects were taken in a survey on site and from secondary data supplies. Those data were sort using graphic computer software, word processor and spreadsheets. The result was a method and tools within the local characteristics and the target to be achieved: environment characterization studies, participative environment management process implementation in place. The final products were maps and images database – pictures and videos from the region.

USO E OCUPAÇÃO DO SOLO NA AMAZÔNIA: A INFLUÊNCIA DE UMA USINA HIDRELÉTRICA

Jacqueline Carril Ferreira da Rocha, Annunziata Donadio Chateaubriand, Adorea Rebello da Cunha Albuquerque, Elizabeth Ferreira Cartaxo, Fernanda Caroline Leite Honorato, Levi D'Araújo Nogueira

The Amazon's rivers, in addition of being natural attractions arises as alternative energy generation, resulting in changes in the characteristics, in scenic landscape and in dynamics of the riverine population, as from the formation of reservoirs. In this context, you will find the Balbina Hydroelectric Power Plant (HPP Balbina) in Uatumã River, Brazil, resulted in changes in their surroundings. This work, developed by Project PIRAHIBA, shows the influence of HPP Balbina in the land use and occupation by the community Fé em Deus, Presidente Figueiredo, Brazil, with predominance of three types - agricultural, residential and recreative. These uses were established after the implementation of this HPP and resulted in the change scenic landscape - formation of the reservoir; ease of mobility - building roads and locals highway, and access to energy. These factors also contributed to the creation of new alternatives of life for local people.

COMUNICAÇÃO VISUAL E OS CONGRESSOS DE EXTENSÃO: A EXPERIÊNCIA DE UMA UNIVERSIDADE AMAZÔNICA

Mayana Fernandes Veras, Annunziata Donadio Chateaubriand, Dayse Enne Botelho, Ádria Carol Batista Afonso

University extension is characterized as a process that combines teaching and research in an inseparable way and that enables the transformation of society. In this context, the Federal University of Amazonas has sought to continuously strengthen its extension activities through the organization of events, congresses Extension, which aims to: promote the socialization of products and extension actions, stimulate the exchange of experiences and discussion new ways, and to encourage the presentation of activities, achievements and solutions, expanding the training process for all involved and transformation of the university and society. In this context, this work presents the methodological procedures and products using visual communication tools in organizing principles, characteristics and outcomes of actions of university extension, as well as its contribution to the recovery and strengthening of the identity of the university extension and for disseminating results.

O FORNECIMENTO DE CAPACITAÇÃO CONTINUADA E A EVOLUÇÃO DA GESTÃO DE SEGURANÇA E SAÚDE DO TRABALHADOR: ESTUDO DE CASO EM UMA ORGANIZAÇÃO DO SINDAE

Marllen Aylla Teixeira dos Santos, Ana Paula Cruz dos Santos, Leonardo de Oliveira Medeiros, Joyce Elanne Matheus Celestino, Karen Maria da Costa Mattos

Increasingly becomes visible the need to preserve the physical and mental integrity of workers in enterprise environments. One way of achieving this is through the provision of adequate and continuous training, which provides the basis for development of safe work practices and promotes the maintenance of a proactive stance on the part of workers. In this context, this article discusses the construction of the Training Programme on Safety and Health at Work which comprises the Integrated Management Systems of an SINDAE organization (Brazilian System of Development of Space Activities). The methodology is based on the Collective Labour Analysis, a technique that has helped understand the training needs at all levels of the institution. The data analysis directed the development of the program, whose implementation will enable remedy the training needs of workers, contributing to the improvement of health and safety management in the organization.

Session PW1B

PROPOSIÇÃO DE PROGRAMAS / AÇÕES VISANDO À MELHORIA DO SISTEMA DE GESTÃO DE QUALIDADE DE UMA ORGANIZAÇÃO MILITAR AEROESPACIAL BRASILEIRA

Luciano Queiroz de Araújo Júnior, Joyce Elanne Matheus Celestino, Karen Maria da Costa Mattos, Fernanda Cristina Barbosa Pereira Queiroz, Maria Goretti Dantas

The present study aimed to propose programs for the Quality Management System (QMS) of a Brazilian Military Organization (OM) of the Aerospace Sector. The methodology developed from technical visits in eight sections that include all Divisions of OM. Were conducted semi-structured interviews to gather the demands of the servers of the sections, in order to develop actions for improvement of the QMS. Were formulated three programs: Quality Monitoring, Training and Capacity; Beyond the Barriers. Were also identified in needs to recast Internal Audit and Management Documentation. All these proposals were presented and validated with 30 heads of sections of the Institution. It is known that the proposals represent cultural change and break paradigms, so that they are applied suggests the creation of a working group to implement these proposals and they are set clear targets for achieving the results.

BENEFÍCIOS DA UTILIZAÇÃO DA ETNOGRAFIA PARA A ANÁLISE DO SISTEMA DE GESTÃO DE QUALIDADE DE UMA ORGANIZAÇÃO MILITAR AEROESPACIAL BRASILEIRA

Luciano Queiroz de Araújo Júnior, Joyce Elanne Matheus Celestino, Karen Maria da Costa Mattos, Fernanda Cristina Barbosa Pereira Queiroz, Maria Goretti Dantas

Studies on Quality Management System (QMS) involve complex situations that are not easy to understand using only quantitative research methods. Therefore there is the need for qualitative methods. This article aims to address the benefits of using ethnography - a qualitative research method - and it was developed by two goals: 1) to describe the ethnographic method and its use in analysis of QMS, 2) assess the methodological aspects of a ethnographic research conducted in a Brazilian Aerospace Military Organization. The analysis used a methodology based on ethnography, with actions were guided by the structure of the PDCA/PDCL cycle. For data collection, three research techniques were adopted: analysis of documents, interviews and participant observation. The Ethnography proved extremely significant because it reached a level of detailed and comprehensive insights and knowledge about the organization's servers and their real needs.

PROPOSTA DE CONSTRUÇÃO DE UMA BIBLIOTECA COMUNITÁRIA BASEADA NO REUSO DE MATERIAIS, MANAUS, AMAZONAS, BRASIL

Luísa Tolentino Bento da Silva, Annunziata Donadio Chateaubriand, Dayse Enne Botelho, Rafael Brito Durães, Luiz Gabriel Martins Correia, Barbara Rosa Plantamura, Francisco Maciel de Brito Neto

This paper presents the methodological procedures for the implementation of a community library in an urban community, from architectural design that prioritized the reuse of materials, local specificities and community participation at all stages - definition of local development project architectural realization of actions for feasibility of building materials, labor, work and furniture. These studies were developed by students of Architecture and Urban Planning and Civil Engineering from a public university Amazon, with the support of local leaders, and took into account aspects of the natural and anthropic through making "in loco", photographic records, meetings and workshops. The data were organized from the use of computer graphics software, text and spreadsheets and whose analysis resulted in architectural design for renovation of the space, layout and furniture, stock images and electronics model.

RESÍDUOS HOSPITALARES: RISCOS À SAÚDE PÚBLICA E AO AMBIENTE

Sílvia Carla da Silva André, Ana Paula Milla dos Santos, Tatiane Bonametti Veiga, Adriana Aparecida Mendes, Angela Maria Magosso Takayanagui

This research aimed to know the perception about the risks related to the handling of medical waste of administrators, managers and the person responsible for service of hygiene and cleanliness in a hospital of high complexity, in the city of Ribeirão Preto – São Paulo, Brazil. The data collection was realised by interwies with the administrator, manager of medical waste and the person responsible for service of cleanliness. For the administrator the inadequate handling of the medical waste offers risks for both employees and for environmental. According the manager, the inadequate handling offers risks for both to the patients and environmental; for the person responsible by service of cleanliness there are risks only to the employees. Thus, verified the need of capacity of managers and employees about the handling of medical wastes, emphasizing that the inadequate handling these waste generate risks to the public health and environmental.

PLANO DE GERENCIAMENTO DE RESÍDUOS HOSPITALARES: ANÁLISE DE UM HOSPITAL BRASILEIRO

Sílvia Carla da Silva André, Angela Maria Magosso Takayanagui

This research aims to analyze the Plan Management of Medical Waste of an hospital of high complexity, in the city of Ribeirão Preto – São Paulo, Brazil. This reseacrh is characterized as a case study and exploratory. The data collection was realised by document analysis of the Plan Management of Medical Waste and technical visit. This research verified that the Plan Management of Medical Waste not tackled all the stages of handling of medical waste as external collection, treatment and final disposal. The Plan Management of Medical Waste also not defined as the containers utilized to the internal and external transport of the medical waste should be identified. The Plan described the kind of treatment that was offered to each group of waste, however, not related the kind of final disposal offered to the medical waste. It is considered necessary a different view to the handling of the medical waste, that requires more oversight as way to promote the training and the capacity of the employees, ensuring a handling adequated these wastes.

DIVISÃO E ORGANIZAÇÃO DO TRABALHO NAS ATIVIDADES DE RECICLAGEM DE RESÍDUOS SÓLIDOS URBANOS: ESTUDO DE INCLUSÃO SOCIAL E SUSTENTABILIDADE

Júlio F. B. Facó, Jabra Haber, Jorge Tomioka, Sérgio Ricardo Lourenço

The main objective of this research is the detailed analysis of the division and work organization in recyclable material pickers cooperative. In order to achieve this purpose, authors used sustainability and reverse chain literature concepts. The results allowed author to observe the operation and work relations among pickers inside the cooperative, as well as other aspects related to sustainability on the cooperative work.

A IMPORTÂNCIA DO PLANEJAMENTO LOCAL E REGIONAL DIANTE DE NOVOS MARCOS LEGAIS: UM ESTUDO DA REGIONALIZAÇÃO PARA A GESTÃO DE RESÍDUOS SÓLIDOS NO ESTADO DE PERNAMBUCO, BRASIL

Bertrand Sampaio de Alencar, José Geraldo Pimentel Neto

This paper discuss the evolution of the concept of the region and its unique importance to establish regionalization processes, focusing on the local and regional planning of cities aiming at urban and regional development from public policies defined in area of solid waste management. The research provides a case study of regionalization in Pernambuco state, Brazil. This work, in the universe of 184 municipalities, identified 22 landfills in the State, 18 of which are licensed by the environmental agency and, of these, some find themselves in a precarious situation with the risk of losing license operation and hence the income from ICMS Environmental, with repercussions on social and legal environmental problems. The study consolidates a proposed regionalization of solid waste management in Pernambuco from three (3) scenarios methodological adopted to facilitate the validation process of arranging syndicated in cities and to identify new opportunities for solid waste management in State.

PROGRAMAS AMBIENTAIS NO CENTRO DE LANÇAMENTO DA BARREIRA DO INFERNO – CLBI, PARNAMIRIM, RN, BRASIL: PROPOSTAS PARA COMPOR UM SISTEMA DE GESTÃO AMBIENTAL

Joyce Elanne Matheus Celestino, Rômulo Alves Fidelis, Maria Goretti Dantas, Karen Maria da Costa Mattos

Compliance with environmental requirements has been required of companies by society as a result of needs as conserve natural resources and manage its environmental aspects, to reduce pressures on the environment. In the Launch Center of Barreira do Inferno has focused efforts to deploy an Integrated Management System. To this end, we investigated the main environmental aspects / impacts involved in Center activities, aiming to propose programs of its reality. The case study was based on the Environmental Impact Assessment (Sánchez, 2009). After analyzes were performed with servers running operating, administrative, and support. Thus, revealed the existence of significant environmental aspects in the development processes, justifying the need for an environmental management can control them and manage them through environmental programs that address the management of waste, conscious consumption of natural resources , biodiversity conservation and environmental education and communication.

Session PW2A

O DESIGN COMO UM INSTRUMENTO DE COMUNICAÇÃO

Patrícia Rocha Santos, Annunziata Donadio Chateaubriand, Elizabeth Ferreira Cartaxo, Rayssa Mendonça de Oliveira

The PIRAHIBA Project has as its goal to do researches in hydroelectrics located at the Amazônica Basin, identifying its interference on the environment and the populations that live nearby identifying the existing participatory management processes. Formed by many research groups, this project develops actions with a multi, inter and transdisciplinary feature, involving local communities. In this context, this paper describes the methodological procedures and the products generated by the Design area for the research group “Water and Communities” to: promote the communication between teachers, students and technicians from different areas of knowledge and communities; facilitate the generation and systematization of information of different forms and origins; and, publish results. It is noticed that the Design tools used and the products developed by it were decisive to the understanding, acceptance and participations of the community in the actions of the PIRAHIBA Project.

INTERVENÇÃO DE DESIGN EM PROJETO ARQUITETÔNICO: GESTÃO DE IDENTIDADE VISUAL DE UMA OFICINA ESCOLA

Ádria Carol Batista Afonso, Annunziata Donadio Chateaubriand, Mayana Fernandes Veras

Each Workshop School The Wind in His Pipa is a site designed for the development of cultural and educational activities geared for children, youth and adults at risk of Crowned community, Amazonas, Brazil. This paper presents the methodological procedures of an intervention of Design in Architectural Design Workshop this school, developed by students of Design Crowned Program of the Federal University of Amazonas and which aimed to enhance the principles and actions of School Workshop Each Wind in His Pipa and community characteristics and the location where it will be deployed, Crowned, a continuous process of management and exchange of experiences, where habits and customs are preserved and built and aggregated values. Thus, it is expected to contribute to your immediate recognition and disclosure of your services, conveying its importance for a safe and healthy environment in the community.

COMUNICAÇÃO ATRAVÉS DA ARTE E DAS NOVAS TECNOLOGIAS QUE RENOVAM E COMPLEMENTAM A RENDA FAMILIAR

Maria do Carmo Jampaulo Plácido Palhaci, Luiz Antonio Vasques Hellmeister, Bianca Barbis, Murilo Rodolfo Penteado Leonardo Filho, Juliana Fernandes Pereira

Sustainability suggests a new social organization required for human survival. The aggravation of environmental problems arising by population growth, industrialization, disorderly and unconscious consumption of Human Being, induces us to think about how to stop these problems. Recycling presents itself as a means of stopping environmental destruction and as a way to increase the family income of the poorest society existing in our globalized world. This article suggests a research on recycling being carried out as a means of livelihood

EDUCAÇÃO PARA O DESENVOLVIMENTO SUSTENTÁVEL

Renata Cristiane Fusverk da Silva, Eduardo Juan Soriano Sierra

The small amount of data available on the River Basin and its mangrove Ratones boosted the realization of the project "Knowledge and Management of River Basin and its mangrove Ratones". The project has developed several scientific studies concerning physical, chemical and biological processes in the region and among the goals of the project include engaging the Federal University of Santa Catarina in the applied research needs to obtain scientific basis to support management standards optimizing based on principles of sustained yield. The strategy of the organization and execution of studies for search tasks were: characterization of the current state of the watershed and its mangrove forest and environmental education (Soriano-Sierra, 1999). Concurrently, we developed an Education Program for Sustainable Development (subproject) which will limit our studies.

PROJETO VIDAS PARALELAS E A SAÚDE DOS TRABALHADORES: RELATO DE UMA EXPERIÊNCIA BRASILEIRA

Maria da Graça Luderitz Hoefel, Denise Osório Severo, Elisa Maria Amate, Erlayne Camapum Brandão, Jane Pereira Araújo, Layreane Silvano dos Santos

The Parallel Lives Project seeks to reveal the daily life and work through the eyes of the subjects. To this end, we intend to develop it through pedagogical processes that coordinate the teaching-research-extension and lead to the construction of spaces that oportunizem social groups confer new meanings to digital culture, favoring the construction of knowledge and the expansion of social participation. The aim of this study is to report how the project is being developed parallel lives by participating employees in conjunction with academia. Described a little about the reality of the project parallel lives in some states. The project has been essential to provide changes in life histories of many Brazilian workers.

CONDIÇÕES DE TRABALHO DE CATADORES DE RECICLÁVEIS DO LIXÃO DO DISTRITO FEDERAL

Maria da Graça Luderitz Hoefel, Fernando Ferreira Carneiro, Leonor Maria Pacheco Santos, Muriel Bauerman Gubert, Elisa Maria Amate, Wallace dos Santos

The work situation of collectors of recycling solid waste allows a precarious livelihood but triggeres a process that has exacerbated the very conditions of life of these populations, mainly their health. This study aimed to identify the prevalence of occupational accidents at the open dumps in the DF and association with health and socialdemographic factors. This study shows that most collectors have had an accident at work (55%), has the notion of danger of the environment that surrounds them (95%) and claim that they received EPI (57%). There was a statistically significant relationship between accidents and work: perception of very dangerous work, household food insecurity, and the presence of fatigue, stress and sadness ($p < 0.05$). It is concluded that the solid waste segregators are a vulnerable community and socialenviromental public politic we can get the reversal of this health situation.

PROCEDIMENTOS METODOLÓGICOS DE ALTA, MÉDIA E BAIXA INTERVENÇÃO PARA CARACTERIZAÇÃO DE COMUNIDADES AMAZÔNICAS

Annunziata Donadio Chateaubriand, Adorea Rebello da Cunha Albuquerque, Jacqueline Carril Ferreira da Rocha, Elizabeth Ferreira Cartaxo, Fernanda Caroline Leite Honorato, Levi D'Araújo Nogueira

The Amazon region has a natural attraction to community building: the water. For being essential to life's maintenance and to exist in abundance in the region, facilitating the transport of people and materials, is common to observe the displacement of people to the banks of water bodies, giving rise to communities. On the other hand it is observed that in face of the region's dimensions and of the way how occurs this occupation, access to these communities, dispersed along watercourses or on islands, result in higher time with displacements and in difficulties in development of surveys in loco, especially on rainy days. In this context, this work presents the methodological procedures for high, medium and low intervention, developed by Projeto PIRAHIBA, to characterize communities located around the reservoir of a hydroelectric plant from the involvement of local communities and cross-analysis of primary and secondary data.

ANÁLISE TÉRMICA DE BLOCOS DE CONCRETO COM ADIÇÃO DE CASCAS DE ARROZ

Maria Elena Walter, Christianne Rodrigues, Vitório de Castro, Sinthya Gonçalves Tavares

The construction industry is one that generates more waste in big cities. Moreover, in the industrial processing of rice are produced approximately 100 million tons of shells are not always properly discarded. Given the economic and environmental viability, we propose the following work where rice ash obtained from them, are used, along with construction waste, in making ecological blocks. Rice husk was used as alternative materials in replacement of part of the sand. For the evaluation of the thermal properties of concrete blocks (diffusivity, conductivity and specific heat) was used infrared thermography and mathematical model for validation of experimental results. The results were validated metrological point of view, indicating the thermal behavior similar to the standard block.

ANÁLISE MECÂNICA DE BLOCOS DE CONCRETO COM ADIÇÃO DE CASCAS DE ARROZ

Maria Elena Walter, Christianne Rodrigues, Vitório de Castro, Sinthya Gonçalves Tavares

The construction industry is one that generates more waste in big cities. Moreover, in the industrial processing of rice are produced approximately 100 million tons of shells are not always properly discarded. Given the economic and environmental viability, we propose the following work where rice hulls and/or ash obtained from them, are used, along with construction waste, in making ecological blocks. Rice husk was used as alternative materials in replacement of part of the sand. The husk ash as substitute for cement. Compressive strength tests were performed. The results showed increased resistance to compression of the block relative to the block ecological pattern. Such behavior warrants the output of block ecological alternative constructions for efficient low cost.

ANÁLISE DA CONFIABILIDADE DE DESENVOLVIMENTO DE PRODUTO ATRAVÉS DE CAD/CAE

José Ricardo Menezes Oliveira, Enrique Andrés López Droguett, Jefferson Arlen Freitas, Helenice Leite Garcia, Carlos Alexandre Borges Garcia

CAD and CAE tools such as new product development and proposition of reliability indices were evaluated in implementing a system component conformation mechanical injection in an industry of electric showers. The application of qualitative tools detects critical flaws of such a system and identified a design specification for design problem solving. The finite element analysis (FEA) allowed the construction of a new type of needle for the injection mold and after the period of deployment and tuning was collected new samples of practical application, aimed to compare the results of the conventional system. The consolidated results confirm a significant increase of performance criteria observed, especially with regard to the functions failure rate, MTTF and reliability, allowing infer that the computing resources, constitute itself as an alternative to solving the unmistakable design problems this nature.

Session PW2B

ANÁLISE DA GESTÃO DOS RESÍDUOS SÓLIDOS URBANOS DA CIDADE DE CURITIBA - COLETA SELETIVA E DOMICILIAR COM ABORDAGEM NOS HORTIFRUTIGRANJEIROS

Adalberto Koodi Takeda, Inês Janete Mattoso Takeda, Alexandre Botari, Janaina Conversani Botari, Naiany Baldissera Macinell

The first Brazilian experience of selective garbage collection was deployed in Niterói (RJ), in 1985. From 1988 programmes were implemented in several cities such as Porto Alegre, Belo Horizonte, Curitiba, Florianópolis and others. Studied selective collection program "Green Exchange" of the municipality of Curitiba who understood the diversion rate from landfill material, recycled material amount per person, the cost of the program to the City Hall, the cost per ton, the amount of fruit and vegetable producers and its cost to the city. The percentage of material diverted from landfill provided by this program was 0.97%, recycled material per person was 17.01 kg/inhab./month, the annual cost was R\$ 24,158 hortigranjeiro .69/month, the cost per ton amounted to R\$ 140,31/t, the annual quantity of fruit and vegetable producers spent was 96,634 .75 kg/month and the cost per Kg of fruit and vegetable producers was 0.25 cents.

BARREIRAS TERMO ACÚSTICAS VEGETAIS EM ESPAÇOS PÚBLICOS ABERTOS – O CASO DAS PRAÇAS DO MUNICÍPIO DE UMUARAMA - PR

Alexandre Botari, Janaina Conversani Botari, Inês Janete Mattoso Takeda, Adalberto Koodi Takeda

Any studies have considered the vegetation as an important indicator of environmental quality. Implemented as thermo-acoustic barriers, for example, the vegetation turns out to become an effective and sustainable solution. This article will address some analyses based on Thermo-Acoustic measurements at Santos Dumont, John Paul VI and Brasilia squares, in the city of Umuarama PR – Brazil, aiming at the implementation of plant barriers in certain critical points in the squares, with regard to noise and temperature. The goal is to establish a proposal for minimization of the environmental problems so common in these urban public spaces. It is believed that the standardization of this arrangement can contribute directly to the understanding of its importance and function in urban space.

ANÁLISE DA GESTÃO DOS RESÍDUOS SÓLIDOS URBANOS DA CIDADE DE CURITIBA COM ABORDAGEM NA COLETA SELETIVA E DOMICILIAR

Adalberto Koodi Takeda, Inês Janete Mattoso Takeda, Alexandre Botari, Janaina Conversani Botari, Naiany Baldissera Macinell

The population growth and the concentration in large cities, with the industrial, technological development and the increasing consumption of disposable products caused problems due to solid waste. These factors have produced environmental, health and social changes. It was examined whether the program of selective collection "garbage that is not garbage" of Prefeitura Municipal de Curitiba. The study consisted of aspects such as: the landfill diversion rate, the cost of the program to the City Hall, the cost per tonne, the real yield. For collectors of recyclable material, understood the diversion rate and the economy for the city of Curitiba/PR-Brazil. The diversion rate was 3.92% per year, the average monthly cost was R\$ 323,939.88, the cost per tonne was \$ 261.38/t, real income 0.78 Kg/inhab. month, quantity of waste collected by collectors was 9345.37 tons/month, the rate of diversion was 29.59% per year and the economy was R\$ 29,312,460.10.

ANÁLISE DA GESTÃO DOS RESÍDUOS SÓLIDOS URBANOS DA CIDADE DE CURITIBA - COLETA SELETIVA E DOMICILIAR DE HORTIFRUTIGRANJEIROS COM ABORDAGEM NOS CUSTOS

Adalberto Koodi Takeda, Inês Janete Mattoso Takeda, Alexandre Botari, Janaina Conversani Botari, Naiany Baldissera Macinell

The analysis of the selective collection of Curitiba can provide parameters for the continuity of existing programmes as well as providing data for other cities that are deploying. The fact of Curitiba have deployed separate collection in 1989, has consistent data that enables a more secure analysis. It was found in relation to the "Purchase waste" program expenses for the municipality of Curitiba, the cost per tonne of waste, spending on fruit and vegetable producers, the cost per person and the deposited amount as social benefits to the community. Program expenses were R\$ 49,695.87 kg/month, the cost per ton was 91.00/t, the annual quantity of fruit and vegetable producers spent by the city of Curitiba was R\$ 12,457.29/month and the deposited amount was R\$ 22,676.74/year. The program "Purchase waste" attended monthly 21584 people, exchanging 49829.17 kg of fruits for household waste.

ANÁLISE DA EFICIÊNCIA DE REMOÇÃO DE DQO NO PROCESSO DE ELETROCOAGULAÇÃO VIA ELETRODOS DE ALUMÍNIO APLICADO AO TRATAMENTO DE CHORUME

Kahiqui Rafael Ortiz, Janaina Conversani Botari, Alexandre Botari

The electrocoagulation is a treatment process that consists of the electrical discharges application in the effluent through a cell has aluminum electrodes (cathodic and anodic metal plates), powered by a direct current source. This process provides the wastewater oxygenation and various dissociation reactions and rupture in more complex organic molecular chains common in waste as leachat. The area and volume required for the deployment of this technology of treatment are reduced compared to conventional biological processes. For the evaluation of electrocoagulation process efficiency, was used an experimental electrolyte device, were measured physical, chemical and biological parameters of leachat samples of Umuarama city landfill – PR – Brazil. Was simulated the batch scheme depending on the variation of electric power parameters of the experimental electrolyte device and and variation in the detention time. Obtained a reduction of about 72% in COD for detention times between 15 and 30 minutes.

MÉTODOS EDUCACIONAIS DE APRENDIZAGEM SIGNIFICATIVA APLICADOS AO ENSINO DA FÍSICA ACÚSTICA NA ÁREA DA CONSTRUÇÃO CIVIL

Alexandre Botari, Janaina Conversani Botari

This work has as its main objective to present the effectiveness of alternative approaches to traditional didactic instrumentation teaching-learning facilitation in pupils of the course of Civil Technology within the context of physics acoustics to the discipline of Environmental Comfort. There was use of "pre" and "post" questionnaires pedagogical application of Interventional some computational tools presented during the lectures. This work will be addressed significant learning in the context of the theory of David Ausebel, enabling a better diagnosis of the results in the questionnaires applied to students. Thus, a quantitative and qualitative analysis of the educational intervention provided by the pedagogical approach of the content, as well as check the associability of prior knowledge from teaching/learning obtained during high school and of the multiple experiences of students.

MONITORAMENTO TERMO-ACÚSTICO EM ESPAÇOS PÚBLICOS ABERTOS – O CASO DAS PRAÇAS DO MUNICÍPIO DE UMUARAMA – PR

Alexandre Botari, Janaina Conversani Botari

In this paper is presented a sound environment evaluation in the Squares: Santos Dumont, John Paul VI and Brasilia in the city of Umuarama – PR – Brazil, taking into account the context and seasonality. Here are contained tables and quantitative maps, with levels of noise in decibels. Are presented a survey in form of tables and quantitative mappings along with some considerations of the current status. It is also presented a history, description, and current situation of the above squares. The studies were based on measurements "in locus", exploratory and photographic survey walks. Such surveys were used to support the preparation of tables and maps of masses that will provide inputs for the analysis for future noise barriers, effective solutions for open public areas like these. Ending with some recommendations for the optimization of the methodology employed in this work.

A FITORREMEDIAÇÃO COMO INSTRUMENTO ALTERNATIVO NO SANEAMENTO AMBIENTAL

Raquel Soares, Inês Janete Mattoso Takeda, Janaina Conversani Botari, Alexandre Botari

The pesticides are substances that perform the pest and disease control in crops. However, overuse causes great environmental impact and damage to human health. For the solution of these problems to phytoremediation was developed as a technique that uses plants to remove, restraint or transformation of soil pollutants. This paper considers data from surveys and analyzes the results and efficiency of this technique. Most of the plants tested as phytoremediator plants are the Leguminosae (53%), followed by Poaceae (38%), Asteraceae (4%), Cruciferae (4%) and Chenopodiaceae (1%). It was observed that species are effective to phytoremediation certain contaminants, may not do the same with others. Different cultivars or hybrid species showed changes regarding your ability to phytoremediation, featuring distinct or similar results against the same pollutants. The technique is promising, but it is need more studies.

LEVANTAMENTO E CARACTERIZAÇÃO DA VEGETAÇÃO DE PRAÇAS REPRESENTATIVAS DO MUNICÍPIO DE UMUARAMA – PR

Inês Janete Mattoso Takeda, Janaina Conversani Botari, Alexandre Botari

The vegetation of the squares is an important landscaped and ecological aspects as well as environmental comfort. Aimed to make the survey of the species in three squares of Umuarama city – PR - Brazil. Two of them are representative of the city of Umuarama, PR. Plant samples were collected and identified according to usual methods. Are the squares: Plaza Brasília, 7 species, 42 trees; Santos Dumont square 11 species, 42 trees and John Paul VI Square, 81 specimens of 7 species. *Caesalpinia peltophoroides*: Brasilia Square - 34, João Paulo VI Square, 7 and Santos Dumont Square 17 individuals. *Caesalpinia ferrea* occurred only in the square Pope John Paul VI - 33 individuals. *Tipuana tipu*, (exotic): John Paul VI Square 17 trees; Santos Dumont square - 4 trees. *Syagrus romanzoffiana*, native: John Paul VI square 15 specimens and 9 in Santos Dumont Square. These squares were 155 trees of 18 species.

A COLETA SELETIVA DA CIDADE DE UMUARAMA COM ABORDAGEM NA ECONOMIA DOS ESPAÇOS NO ATERRO SANITÁRIO

Naiany Baldissera Macinell, Adalberto Koodi Takeda, Inês Janete Mattoso Takeda, Janaina Conversani Botari, Alexandre Botari

A concern of the modern world is the production of municipal solid waste. The commitment of the natural resources moves forward with the development of contemporary consumer society. This paper analyzes the space occupied and saved and deviation rate as well of the landfill of Umuarama city – PR – Brazil, by selective collection program "Value Trash". The main goal of a selective collection program is reducing the amount of garbage. The impact is measured by the ratio between the recyclable materials collected/household garbage collected amount in a given period. This work considered 8 months in 2012. The percentage of diverted material is 0.18%, the space occupied and saved respectively was 8033.76 m³ and 1.6 m³. It is concluded that separate collection is not economically profitable, because revenue from the sale of recyclable does not cover the costs of the program. However, it is essential to consider the environmental and social costs.

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